

AUGUST, 1988

HELENA

MONTANA

Amendment To Wastewater Facilities
Plan For Helena — Helena Valley

prepared by

Robert Peccia & Associates, Helena, Montana

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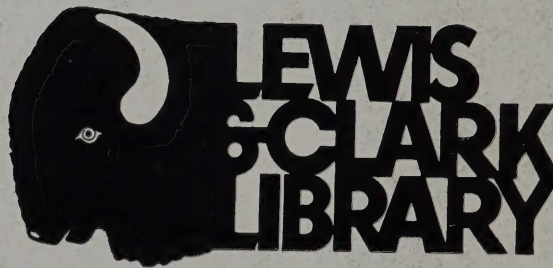
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TABLE OF CONTENTS

	<u>Page</u>
ACKNOWLEDGMENTS	1
CHAPTER 1.0: INTRODUCTION	2
1.1 Introduction	2
1.2 Study Area	2
1.3 Population	2
1.4 Purpose	3
1.5 Public Participation	3
CHAPTER 2.0: EXISTING SANITARY SEWER SYSTEM	4
2.1 Background	4
2.2 TV Inspection Survey	4
2.3 Composition of Sanitary Sewer System	4
2.4 Condition of Sanitary Sewer System	5
2.5 Manhole Survey	7
CHAPTER 3.0: SANITARY SEWER IMPROVEMENTS PROGRAM	9
3.1 Alternatives Considered	9
3.2 Recommended Improvements	11
3.3 Cost Estimates	16
3.4 Financial Considerations	18
3.5 Implementation Schedule	19
CHAPTER 4.0: ENVIRONMENTAL CONSIDERATIONS	20
4.1 Introduction	20
4.2 Proposed Action	20
4.3 Affected Environment	20
4.4 Environmental Consequences	20
APPENDIX A: PREAWARD COMPLIANCE REVIEW REPORT FOR WASTEWATER TREATMENT CONSTRUCTION GRANTS (EPA FORM 4700-4)	22
APPENDIX B: COMPUTER SUMMARY OF STUDY AREA SEWER SYSTEM	23

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LIST OF FIGURES

<u>Figure No.</u>		<u>Page No.</u>
1	Sewer Pipe Materials	6
2	Sewer Condition Rating.....	8
3	Recommended Improvements.....	14

LIST OF TABLES

<u>Table No.</u>		<u>Page No.</u>
1	Study Area Sewer System and TV Inspection Inventory.....	5
2	Sewer Pipe Condition Rating System	5
3	Cost Comparison of Excavated Main Replacement to Slip-Lining and "In-Situ Form" Process	10
4	Summary of Recommended Improvements.....	15
5	Cost Estimate for Recommended Improvements	16

LIST OF PHOTOGRAPHS

<u>Photo No.</u>		<u>Page No.</u>
1	Concrete Pipe from 500 Block of Breckenridge	13
2	Broken Section of Concrete Pipe from 300 Block of Adams.....	13

ACKNOWLEDGMENTS

The field investigations and condition ratings for the sanitary sewers that are included in this Wastewater Facilities Plan Amendment were done by the City of Helena's staff. The results of the City staff's efforts were contained in two reports: Sanitary Sewer Improvements for the Central Area and Sanitary Sewer Improvements for the Upper Westside Area. The results of these two studies were combined into this Wastewater Facilities Plan Amendment.

The Sanitary Sewer Improvements Program for the Central Area was done under the direction of Ted Hill, current Environmental Engineer for the City of Helena Wastewater Department.

The Sanitary Sewer Improvements Program for the Upper Westside Area was done under the direction of Mark Weston, former Environmental Engineer for the City of Helena Wastewater Department.

The TV inspection of the sewers, compilation of data, and assessment of the sewer main conditions were done by the City's sewer maintenance crew. Elmer Cole supervised the crew, Bill Horner operated the TV equipment and compiled the data, Rick Williamson operated TV equipment and jetted and cut roots in the sewers, Bob Hulbert performed various maintenance duties, and Dwain Wood typed and organized the reports.

The diligent efforts of these members of the City's Wastewater Department in inventorying and assessing the sanitary sewer system needs is appreciated and hereby acknowledged.

CHAPTER 1.0: INTRODUCTION

1.1 INTRODUCTION

The City of Helena's Wastewater Department inventoried and conducted studies on the condition of sanitary sewers in the central and upper westside areas of Helena where old sewer mains were known to have deteriorated. The results of these studies are contained in two reports prepared by the Wastewater Department. These reports are entitled "Sanitary Sewer Improvement Program, Upper Westside" completed in January 1987, and "Sanitary Sewer System Central Area Study" completed in April 1988. The results of these studies provided the information used for preparing this wastewater facilities plan amendment.

1.2 STUDY AREA

This facilities plan amendment combines the Upper Westside Study Area and the Central Study Area. The combined study area is bordered generally by Knight and Lyndale Avenues on the north, Montana Avenue on the east, the City limits on the south, and Mount Helena City Park and the City limits on the west. The exact study area is shown on the figures contained in this report.

1.3 POPULATION

The 1980 population for the City of Helena is 23,938 according to the 1980 Census. The population for the area within the study boundary is estimated to be 8,640. No formal population projections are available.

The City of Helena Planning Department estimates the 1988 population of Helena to be approximately 25,000. The minor population increase of about 1,000 people has occurred primarily in the southeastern part of Helena where a majority of the new residential development is being done.

The upper westside and central areas of Helena that are included within the study boundary have a stable population. The area is either fully developed or has terrain limitations that prohibit further development. Therefore, the future population is expected to be about the same as the existing population in the study area. This estimate is supported by the City of Helena Planning Department.

In the original Wastewater Facility Plan populations throughout the City were expected to be much higher. At that time rapid development was occurring and expected to continue. With a downturn in the economy, development came to a standstill and the optimistic projections of the time did not materialize. The present expectation of a stable population or slow growth represents current development activity and is considered to be more realistic.

1.4 PURPOSE

The purpose of this facilities plan amendment is to supplement the wastewater facilities plan done for the Helena-Helena Valley in 1978. At the time the original facilities plan was done, only trunk sewers were eligible for funding participation under the EPA construction grants program. Changes to the program now allow the State the discretion to fund collector sewers with part of their EPA construction grants allocation. A requirement of funding is having a current Wastewater Facilities Plan that covers the proposed improvements.

The intent of this amendment is to expand the original Wastewater Facilities Plan to include the collector sewers in the central and upper westside areas of Helena that are scheduled for replacement.

1.5 PUBLIC PARTICIPATION

The City of Helena actively encourages public participation in all of its projects. The City has a Citizen's Council appointed by the City Commission to represent citizens' interests and to assure public involvement. The Citizen's Council has been apprised by City staff of the condition of the sanitary sewers in the study area and have seen examples of the advanced deterioration of some of the sewers. The Citizen's Council will continue to be kept informed of the project as it develops.

The City also relies on the media to transmit information to the citizens of Helena. The City Commission receives very good newspaper and television coverage, particularly on projects of this nature, and it is anticipated the public will be informed by media coverage.

A formal public hearing will be held on the project as required by EPA. Public hearings are held during the City Commission's regular meetings every Monday night. The Draft Amendment to the Wastewater Facilities Plan will be advertised and the report made public at least 30 days in advance of the public hearing. If controversial issues arise, additional public meetings may be held at the City Commission's discretion. A summary of the public participation process and comments received will be included in the Final Report.

When and if the project is approved, an additional public hearing will be held on financing the project. Financial alternatives and the impact on sewer rates will be discussed thoroughly during these hearings.

CHAPTER 2.0: EXISTING SANITARY SEWER SYSTEM

2.1 BACKGROUND

The existing sanitary sewer system in many areas of the city was constructed between 1887 and 1907. The upper westside and central areas include neighborhoods served by the original sanitary sewer system. The pipe materials used in that area were either clay or cement, and many are 80 to 100 years old. Cement is a designation used on the original sewer maps but is actually an early concrete pipe. Recent sewer maintenance activities discovered extreme deterioration, primarily in the cement pipe.

Beginning in late 1984, the Wastewater Department began TV inspecting sewer lines in the study area. Each line that could be inspected was rated according to its condition and degree of deterioration. A sanitary sewer improvements program was developed from the inspection data.

2.2 TV INSPECTION SURVEY

TV inspection of the study area began in late 1984 and continued until 1988. The City's TV equipment records the information on a 3/4-inch video tape. Viewing these taps can only be done in the TV van. The videos are transferred onto a 1/2-inch tape which can be viewed on any home VHS recorder. In 1985, the Wastewater Department began a video library on every line that is TV inspected. Most of the lines in the study area are now recorded in the library. In addition, the TV inspection data was logged on the inspection reports. An edited video has been prepared showing a typical section of clay, plastic, and deteriorated cement pipes. This video tape is a supplement to this report and is available for viewing.

2.3 COMPOSITION OF SANITARY SEWER SYSTEM

The sanitary sewer system in the study area consists of 181,326 feet (34.3 miles) of sewer lines ranging from 6-inch to 24-inch diameter pipe. The majority of the pipes are 8-inch and 9-inch diameter. The pipe materials include 1880's vintage cement pipe, clay pipe, and a newer concrete pipe. Table 1 lists the total length of each type of pipe, and Figure 1 shows existing sanitary sewers by type of pipe. The system has 504 manholes, 67 flushtanks, and 36 lampholes. The flushtanks no longer function and are abandoned in place. The flushtanks and lampholes do not allow proper access to the sanitary sewers for modern sewer maintenance equipment or TV inspection.

The sanitary sewer system originally was a combined system transporting sanitary sewage and storm water. Most of the storm water has been removed from the system by disconnecting storm water inlets and sealing manhole covers. Flow capacity in the existing lines is more than adequate for the sewer area.

TABLE 1**STUDY AREA SEWER SYSTEM AND TV INSPECTION INVENTORY**

Pipe Material	Total Length (Feet)	Percent of Total Area	Length TV Inspected (Feet)	Length Not TV Inspected (Feet)	Percent Uninspected
Old Cement	73,480	40	51,589	21,891	29.8
Clay	89,914	50	27,320	62,594	69.6
New Concrete	5,810	3	470	5,340	91.9
PVC & Other	12,122	7	1,659	10,463	86.3
Totals	181,326	100	81,038	100,288	55.3

2.4 CONDITION OF SANITARY SEWER SYSTEM

A sewer pipe condition rating system was developed to assess the condition of each pipe. The rating is also used to prioritize replacement or repair. The rating system is shown in Table 2.

TABLE 2**SEWER PIPE CONDITION RATING SYSTEM**

Rating	Description
1	Extreme deterioration, immediate replacement (within 5 years), structurally unsound, maintenance impaired - no jetting advised, discontinue maintenance except for root control.
2	Poor condition - general deterioration, replacement in 5 to 10 years.
3	Immediate spot repairs, wide joints, structurally unsound, pitted pipes, high root areas, and sagging.
4	Fair condition - no replacement within 10 years.
5	Normal wear - no replacement scheduled, good condition.

Each video tape and TV log were reviewed and rated by the Wastewater Department. The review team consisted of the TV Equipment Operator, Sewer Maintenance Foreman, and the Environmental Engineer. Pipe materials, sizes, TV inspection, and condition ratings for the entire study area are shown in the Appendix.

Figure 2 shows the condition of the existing sanitary sewers where TV inspected and rated.

2.5 MANHOLE SURVEY

Along with the TV inspection of the mains, manholes in the study area were inspected. The existing manholes are generally in good shape; however, 6 manholes have deteriorated to the point of needing replacement, 20 manholes need interior repairs, and 116 manholes need new rings and covers. Manhole interior repairs can be conducted by City personnel.

For complete access to the sewer lines, 107 new manholes are needed. These manholes either replace flushtanks or lampholes or are needed at a bend or tee in the sewer line. New manholes on cement pipe have the highest priority due to the deteriorated condition of the pipe. Many of these manholes will be replaced in the course of needed line replacements. Additionally, some existing manholes in adequate condition along lines to be replaced would be more economically replaced than re-used.

Figure 2

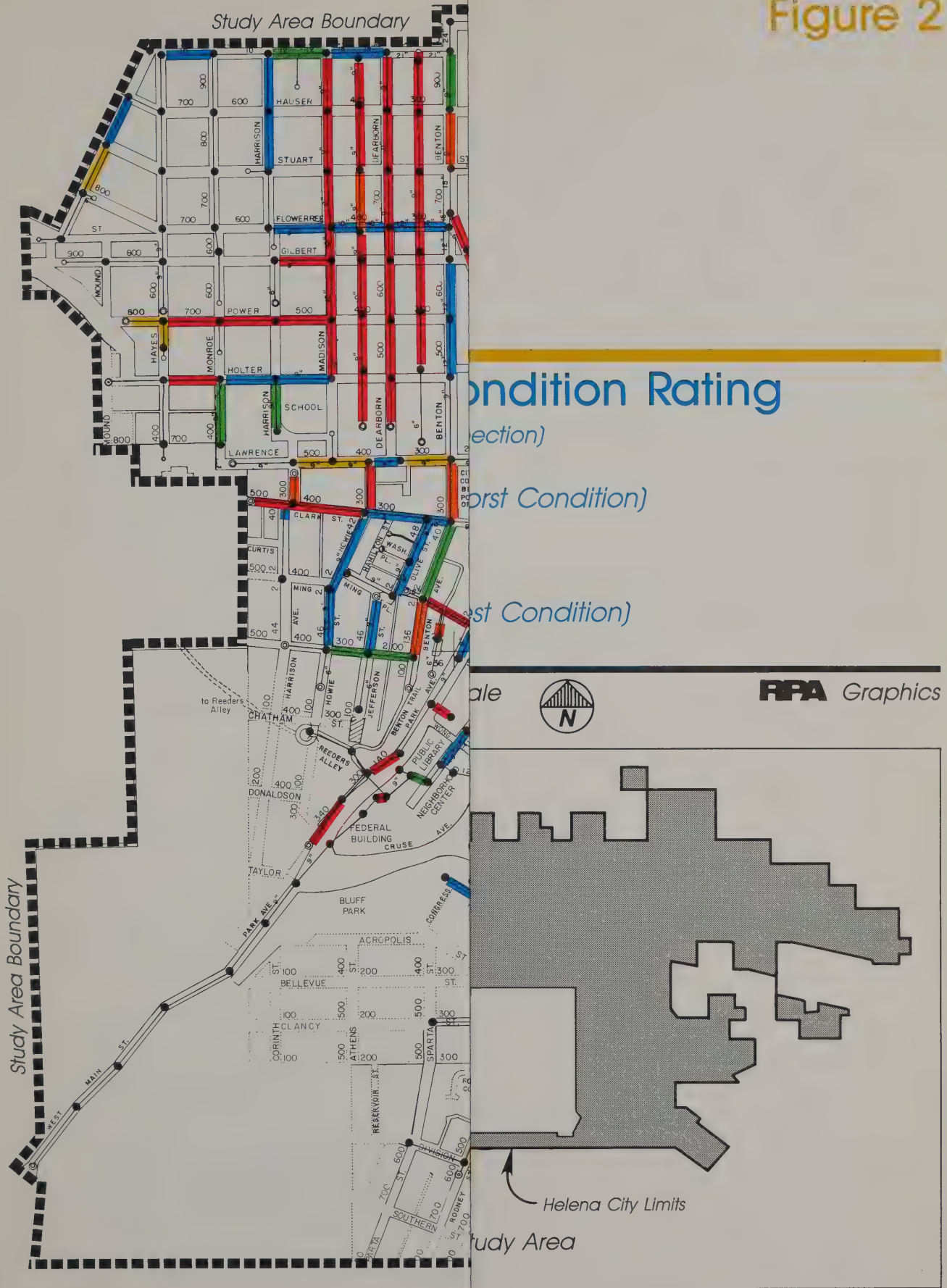
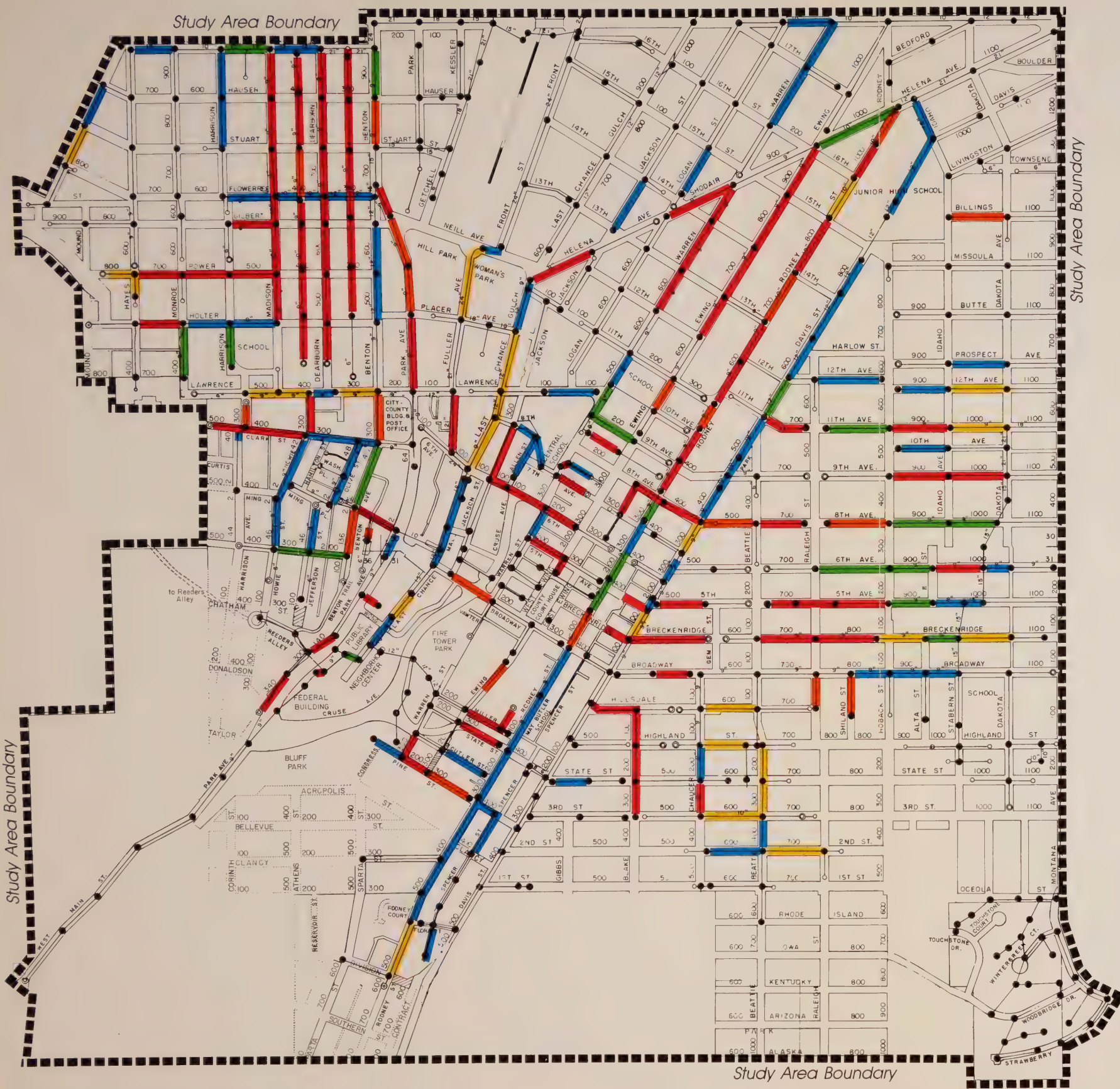


Figure 2



Sewer Condition Rating

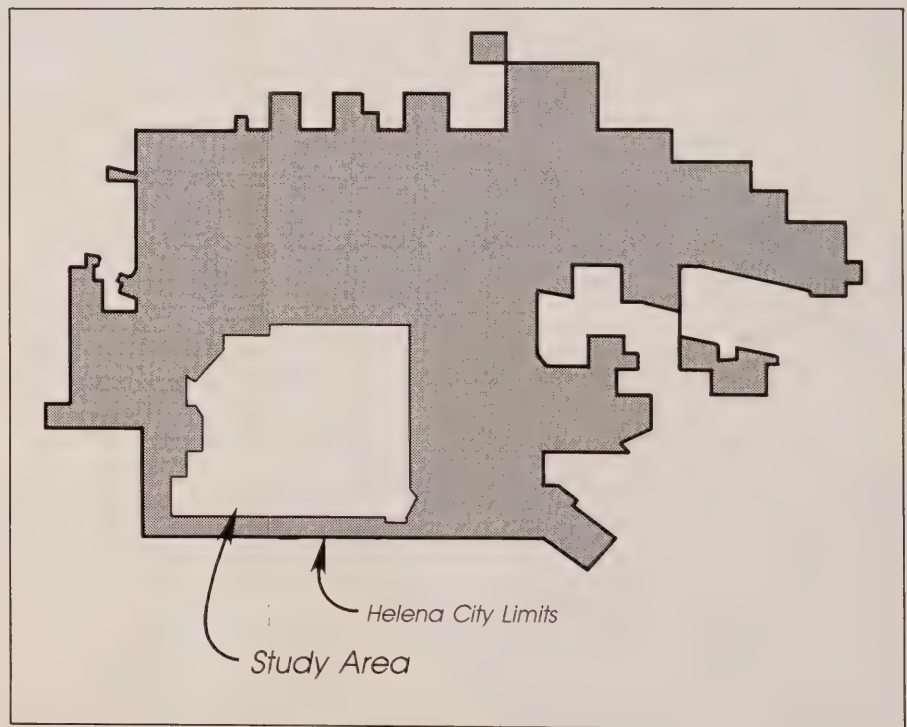
(Based on TV Inspection)

- 1 (Worst Condition)
- 2
- 3
- 4
- 5 (Best Condition)

Map — Not to Scale



RPA Graphics



CHAPTER 3.0: SANITARY SEWER IMPROVEMENTS PROGRAM

3.1 ALTERNATIVES CONSIDERED

Collection system needs within the study area consist of replacing or repairing existing lines to correct problems identified during the TV inspection. No new line construction in unsewered areas is anticipated.

Problems documented from city sewer inspections and maintenance involve pipe integrity and obstructions rather than inadequate line capacity (diameter and slope). Hence replacement lines will be of similar size, laid to similar grades. If grades which do not meet Ten States Standards minimums are encountered, they will be corrected during design within the limits of matching adjacent sections of the collection system.

The lines programmed for replacement all have numerous service connections. Logically, replacement should be accomplished in the same location as the existing sewer main, which limits the practical alternatives to be considered. Several collection system alternatives appropriate to new or rural systems can be discarded immediately as impractical given the existing conventional gravity system. These include the following:

- Small diameter gravity sewers and septic tanks
- Pressure sewers with grinder pumps
- Vacuum sewers
- On-site treatment systems

These would all entail a radical departure from the gravity sewers to which the new improvements must connect. Hence, they can be dropped from further consideration.

Remaining alternatives lending themselves to gravity sewer replacement include three primary options. All would retain the conventional gravity sewer concept of the existing system. These options are briefly described as follows:

Sewer Removal and Replacement: Deteriorated sewer mains would be removed and replaced by open excavation. New SDR 35 PVC plastic pipe would be laid. Existing service connections would be re-coupled to the new mains, necessitating laying the new mains to approximately the same grades and alignments as the existing ones. Bypass pumping is required around the block of main being installed.

Slip-Lining Existing Mains: Continuous flexible polyethylene pipe would be pulled through existing mains between manholes. Minimum excavation is required for installation of the slip-liner, however, service connections have to be excavated to allow tapping through the liner sleeve. Bypass pumping is not necessary because the liner can be pulled while sewage flows through

the line. The pipe lining would provide a new flow surface and restore structural integrity. Some reduction of diameter would result, reducing capacity accordingly. Since lines in the study area are not capacity limited at the present time, this reduction is not considered critical.

"In-Situ Form" Lining: An alternate to conventional slip-lining is available in the form of the proprietary "In-Situ Form" process. This involves the insertion of a resin impregnated felt sock inside the existing main between manholes. No excavation is necessary. Hot water is pumped through the sock to form it to the interior of the existing pipe and activate the resin, yielding a rigid plastic liner. Bypass pumping is required while installation is performed. Structural integrity and flow characteristics are restored. A slight diameter reduction results. Service connections are cut open from the inside using a camera-guided cutting machine. Where existing main inverts are deteriorated or gone, the sock will nonetheless form to the adjacent surface.

All three of these alternatives retain a conventional gravity sewer system, and as such can be considered comparable. Costs per foot of pipe installed vary, but after service reconnection, excavation, and pavement costs are included as applicable, net installed cost is very similar. Table 3 compares costs for 10-inch diameter main.

TABLE 3

**COST COMPARISON OF EXCAVATED MAIN REPLACEMENT TO SLIP-LINING AND "IN-SITU FORM" PROCESS
(10-INCH DIAMETER, ONE-BLOCK LENGTH)**

Item	Excavated Main Replacement	Slip-Lining	In-Situ Form
Main Excavation (480 cy @ \$5/cy)	\$ 2,400	\$ 1,000	\$ 0
Replacement Pipe, 360' (unit price below)	11,520 (32)	7,200 (20)	18,720 (52)
Serv. Connect. w/Excav. if req'd., 8/blk. (unit price below)	1,600 (200)	12,000 (1,500)	2,800 (350)
Clean Exist. Main (360' @ \$7.30/ft)	0	2,630	2,630
Bypass Pumping (1 blk.)	3,000	0	3,000
Pavement Replacement (480 sy @ \$20/sy)	9,600	4,000 (200 sy)	0
TOTAL COST PER BLOCK	\$28,120	\$26,830	\$27,150
Useful Life	40 yr.	30 yr.	30 yr.
Salvage Value after 20 yr.	\$14,060	\$ 8,943	\$ 9,050
Present Worth of Salvage (8 5/8%)	\$ 2,688	\$ 1,710	\$ 1,730
PRESENT WORTH PER BLOCK	\$25,432	\$25,210	\$25,420

These alternatives can realistically be viewed as merely different construction techniques. Each has relative merits for particular situations, and should be considered on a block-by-block basis during design. Further cost distinctions will not be considered, and the alternatives will be considered as comparable in their cost-effectiveness. Final choices of the appropriate construction techniques will be made during design. Excavated main removal and replacement cost estimates are representative, permitting substitution of an alternate methodology where conditions warrant.

Other alternatives include "No-Action" and upgraded operation and maintenance.

The "No-Action" alternative would be to leave the sanitary sewers as they are. This is not practical because, without some action being taken, the sewers will continue to deteriorate until they can no longer provide service. In fact, the concrete sewers would eventually disintegrate. Without sanitary sewer service to the area, the residents would either have to relocate or find alternatives to a centralized sewer system, such as septic tanks. The soil in the area is not suitable for septic tanks, and this alternative would lead to unacceptable health hazards and ground water contamination. The "No-Action" alternative was, therefore, discarded.

Improved maintenance would help to keep some of the sanitary sewers operating for a limited amount of time. However, as shown in the photographs later in this chapter, the sewer pipe materials are disintegrating. In some cases, the sewers no longer have an invert and sewage is flowing across open ground. In other areas, maintenance cannot be done because the sewers have deteriorated to the extent that maintenance such as jetting could cause them to collapse. Improved operation and maintenance cannot restore the integrity of the sewers or reverse the deterioration process. Therefore, this alternative has also been discarded as impractical.

The sanitary sewers have been in service for 90 to 100 years, which is way beyond their expected service life. The City has received full value for their initial investment, and replacement (or an equivalent alternative) is now warranted.

3.2 RECOMMENDED IMPROVEMENTS

Recommended improvements to the collection system in the study area have been based on the TV-inspections and analysis presented in Chapter 2. Given the definition of the condition ratings established by the City, lines with Ratings "1" or "2" need immediate replacement. Lines with higher ratings appear adequate for the duration of the planning period, although slightly escalated maintenance can be anticipated for conditions "3" and to a lesser extent "4".

Since TV-inspection was not performed on all lines in the study area, simply replacing those inspected and rated as poor condition is not sufficient. Comparison of

Figures 1 and 2 illustrates strong correlation between poor condition lines and those constructed of (old) cement pipe. TV-inspection bears this out with frequent and conspicuous deterioration of this pipe type. Photos 1 and 2 illustrate how badly some of the original cement pipe has deteriorated. Poor condition ratings are far less common with clay pipe, and almost nonexistent with newer concrete pipe.

This suggests an additional criteria for line replacement, i.e., lines of like material adjacent condition "1" or "2" pipes can be presumed to be similar. Hence, such lines have also been included for replacement. Both TV inspected lines and lines presumed to be condition "1" or "2" which are expected to be replaced are shown in Figure 3.

Given the standardization of modern PVC sewer pipe sizes, it has been assumed that existing 6- and 8-inch lines would be replaced with 8-inch pipe. Six-inch sewers are also prohibited under Ten State Standards. Likewise, 9- and 10-inch lines would be replaced with 10-inch pipe. Other line sizes can be replaced to match existing diameters. The exception would be if slip-lining or in-situ forming were used in lieu of replacement. Then existing pipe sizes would remain as is except for the loss in diameter due to the process used.

The extent of line replacement needed within the study area dictates that numerous manholes along these line will also have to be replaced. It has been determined that existing manholes lying between two or more replacement lines would be more practical and cheaper to replace than retain. Many of the manhole replacements shown in Figure 3 fall into this category.

PHOTOGRAPHS

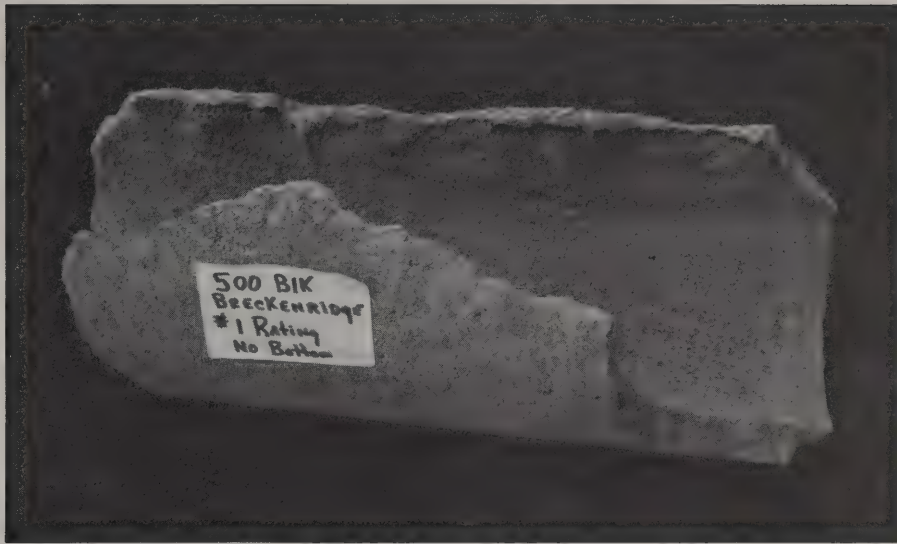


Photo 1: Cement pipe from the 500 Block of Breckenridge. This pipe has no invert (bottom) and is rated condition #1 which is the worst rating.

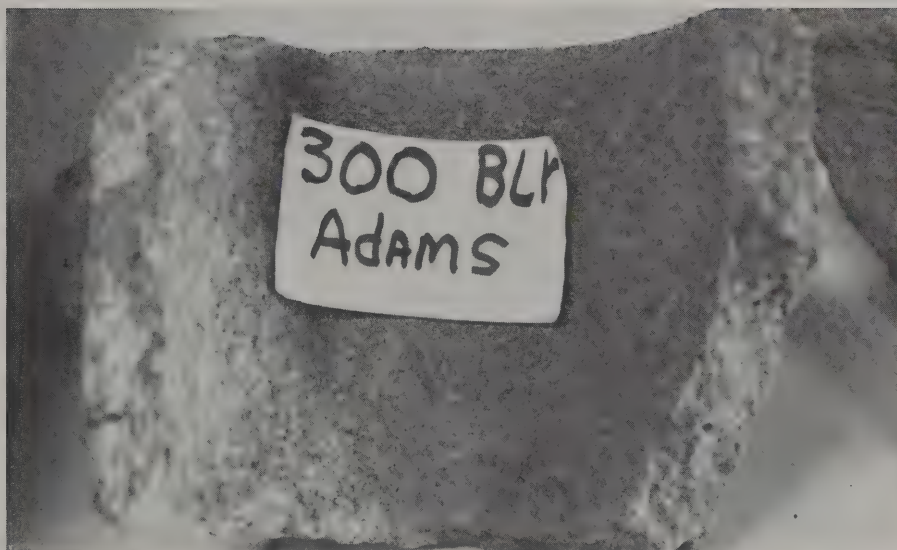


Photo 2: A section of concrete pipe from the 300 Block of Adams. The pipe deteriorated into small, broken sections which no longer provide a suitable conduit for sewage.

Figure 3



ended Improvements

pected Lines to be Replaced
dition Rating 1 or 2)

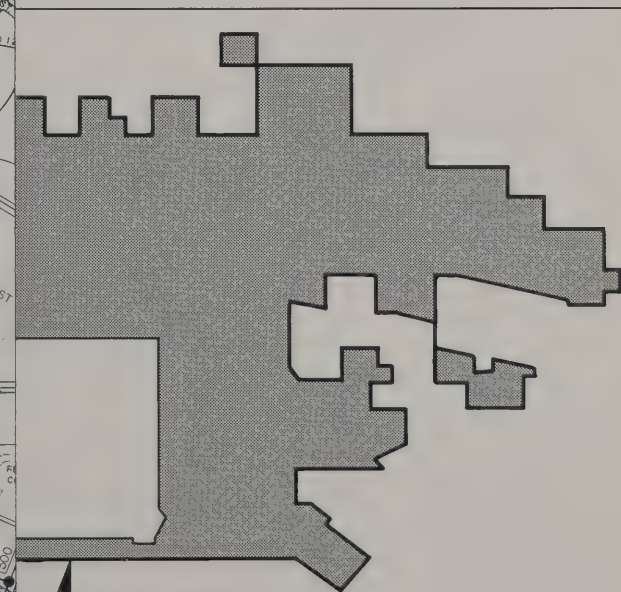
*Expected Lines to be Replaced
(Percent Condition 1 or 2 Lines and
Bar Pipe Materials)*

hole Replacement

ale



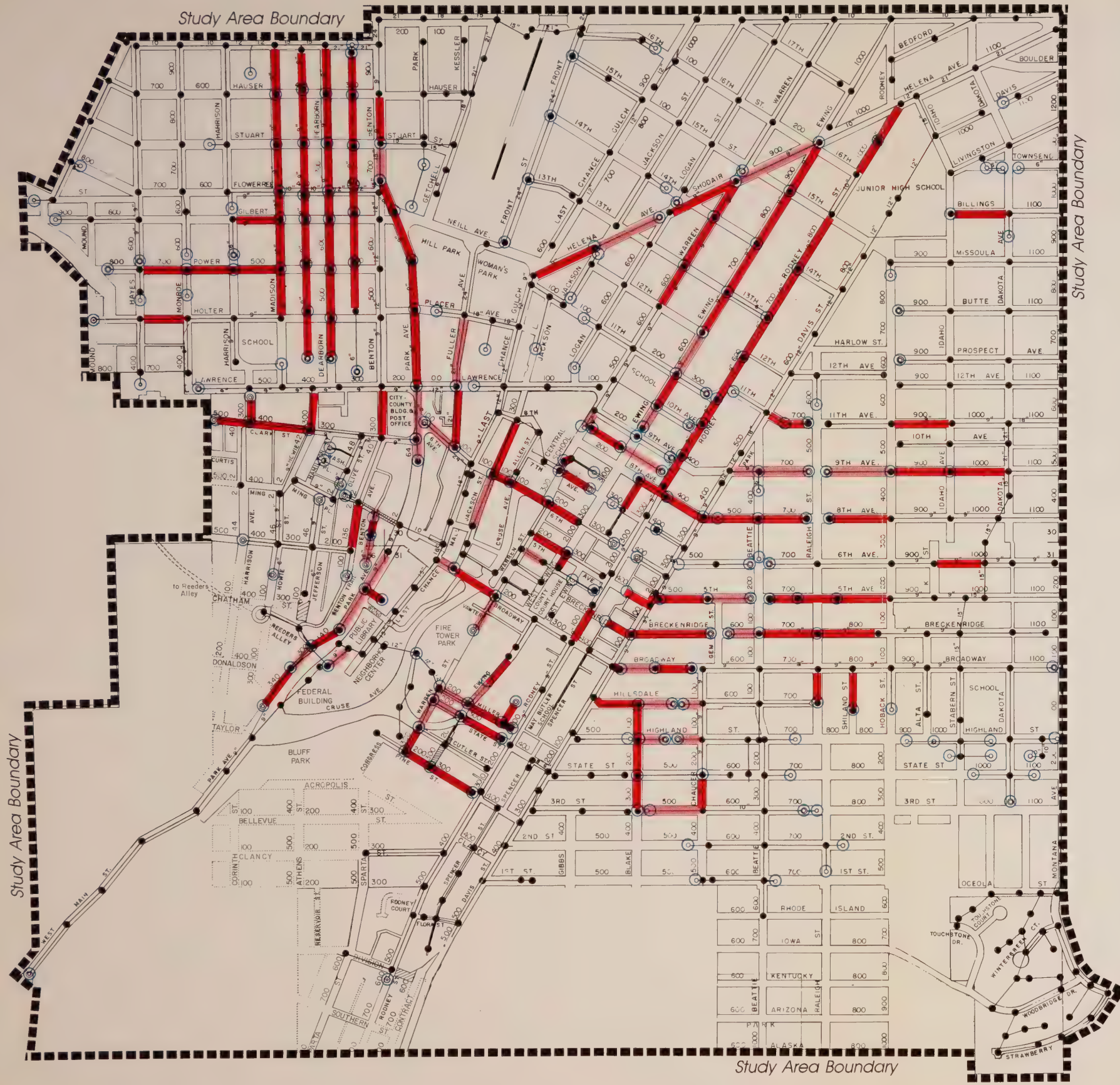
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- Helena City Limits

Study Area

Figure 3



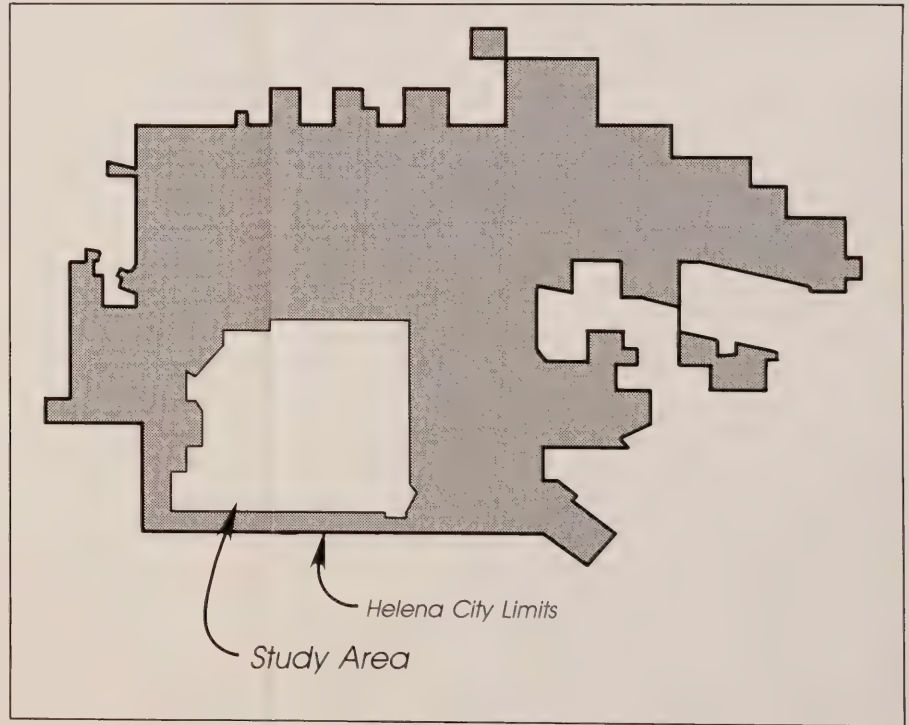
Recommended Improvements

-  TV Inspected Lines to be Replaced (Condition Rating 1 or 2)
-  Uninspected Lines to be Replaced (Adjacent Condition 1 or 2 Lines and Similar Pipe Materials)
-  Manhole Replacement

Map — Not to Scale



RPA Graphics



Additionally there are approximately 93 new manholes needed to correct one of the following conditions (other than in conjunction with main replacements):

- Structurally unsound or deteriorated condition (primarily existing brick manholes)
- Additional points of access needed to the collection system for maintenance and inspection
- Replacement of existing lampholes or flushtanks with manholes

These are also shown in Figure 3.

A final needed improvement is the replacement of existing cast iron rings and covers on 116 manholes. Existing rings and covers at these locations have been found during inspection to be structurally unsound, cracked, or loose fitting. New and properly fitted units should be procured and installed. Benefits of improved safety, reduced liability, and possible inflow reductions would result.

Table 4 summarizes the recommended improvements .

TABLE 4
SUMMARY OF RECOMMENDED IMPROVEMENTS

Item	Quantity
Replace Exist. 6" & 8" Lines with 8" PVC (Inspected Footage = 19,811 lf) (Uninspected Footage = 9,360 lf) (Additional for MH Reconnections = 1,860 lf)	31,030 lf
Replace Exist. 9" & 10" Lines with 10" PVC (Inspected Footage = 18,545 lf) (Uninspected Footage = 2,880 lf)	21,425 lf
Replace Existing 15" Lines with New PVC (Uninspected)	400 lf
Replace Existing 21" Lines with New PVC (Inspected Footage = 490 lf) (Uninspected Footage = 610 lf)	1,100 lf
Manhole Replacements Along Replacement Lines	140
Other Additional New or Replacement Manhole	93
New Manhole Rings and Covers	116

These improvements are also summarized in Figure 3.

Completing the improvements as described will enable the City's sewer maintenance crews to properly maintain the sanitary sewer system. Access to the sewers will be possible because flush tanks, lampholes, and deteriorated manholes will be replaced. Jetting, removing roots, and TV inspections will again be possible because unstable pipe will be replaced; and there will no longer be a danger of sewers collapsing. These operation and maintenance activities are standard procedures for the City of Helena, and will continue on the new sewer system to assure they remain in good operating condition for their service lives.

3.3 COST ESTIMATES

Costs have been estimated for the recommended improvements in Table 5. This cost analysis presumes replacement of lines by excavation and installation of new PVC pipe. New manholes would be reinforced precast concrete.

TABLE 5
COST ESTIMATE FOR RECOMMENDED IMPROVEMENTS

Item	Quantity	Price	Cost	Useful Life (yrs.)	Equivalent Annual Cost (8 5/8%)
8" Replacement Sewer (incl. removal of exist. sewer and bypass pumping)	31,030 lf	\$ 35/lf	\$1,086,050	40	\$ 97,225
10" Replacement Sewer (incl. removal of exist. sewer and bypass pumping)	21,425 lf	40/lf	857,000	40	76,720
15" Replacement Sewer (incl. removal of exist. sewer and bypass pumping)	400 lf	46/lf	18,400	40	1,646
21" Replacement Sewer (incl. removal of exist. sewer and bypass pumping)	1,100 lf	65/lf	71,500	40	6,400
Trench Excavation and Backfill for Replacement Sewer (shored)	72,000 cy	5/cy	360,000	40	32,228

TABLE 5 (CONT.)

COST ESTIMATE FOR RECOMMENDED IMPROVEMENTS

Item	Quantity	Price	Cost	Useful Life (yrs.)	Equivalent Annual Cost (8 5/8%)
Replacement Manholes (incl. removal of exist. manhole)	233 ea	2,500/ea	582,500	40	52,146
4" Service Connection	855 ea	200/ea	171,000	40	15,308
6" Service Connection	45 ea	275/ea	12,375	40	1,108
New Manhole Rings and Covers (Installed)	116 ea	250/ea	29,000	40	2,596
Water Main Relocations at Crossings	20 ea	2,500/ea	50,000	40	4,476
Misc. Concrete Removal and Replacement	500 sy	25/sy	12,500	40	1,119
Asphalt Pavement Removal and Replacement (incl. Base Course)	72,000 sy	25/sy	<u>1,440,000</u>	40	<u>128,910</u>
Subtotal:			\$4,690,300		\$419,882
Plus 25% Contingencies, Engineering and Miscellaneous			1,172,600	40	104,973
Total:			\$5,862,900		\$524,855

During engineering design, consideration can be given to substituting either slip-lining or the "In-Situ Form" process where conditions favor these techniques. As discussed previously, costs for all three methods are essentially comparable. Certain portions of the urban area may lend themselves better to one of the "no dig" options rather than open excavation to simplify construction and reduce public inconvenience.

3.4 FINANCIAL CAPABILITY

The total project costs are estimated to be \$5,862,000. Funding options that are being considered by the City of Helena include a citywide increase in sewer rates, a special improvement district within the study area boundary, and a sewer rate surcharge for those within the study area boundary. The most likely options are either a citywide sewer rate increase or a sewer rate surcharge within the study area boundary. The impact on the current sewer rate structure for a typical family of four both with and without an EPA construction grant for these two options are as follows:

Option 1 - Citywide Sewer Rate Increase (8,140 Users)

	<u>With EPA Grant</u>	<u>Without EPA Grant</u>
Project Cost	\$5,862,900.00	\$5,862,900.00
EPA Construction Grant (55%)	3,224,595.00	--
City of Helena Local Share (45%)	2,638,305.00	--
Revenue Bond Annual Payment (20 yr. @ 9%)	\$ 289,017.00	\$ 642,260.00
Current Revenue from Sewer Service	\$1,146,825.00	\$1,146,825.00
% Increase Required to Fund Bond Payment	25%	56%
Current Average Annual Sewer Bill (Family of 4)	\$ 121.68	\$ 121.68
Increase for Bond Payment	<u>30.42</u>	<u>68.14</u>
Estimated Average Annual Sewer Bill	\$ 152.10	\$ 189.82

Option 2 - Sewer Surcharge in Study Area (2,997 Users)

	<u>With EPA Grant</u>	<u>Without EPA Grant</u>
Project Cost	\$5,862,900.00	\$5,862,900.00
EPA Construction Grant (55%)	3,224,595.00	--
City of Helena Local Share (45%)	2,638,305.00	--
Revenue Bond Annual Payment (20 yr. @ 9%)	\$ 289,017.00	\$ 642,260.00
Study Area Sewer Revenue (2,997/8,140)(1,146,825)	\$ 422,240.00	\$ 422,240.00
% Increase to Fund Bond Payment	69%	152%
Current Average Annual Sewer Bill (Family of 4)	\$ 121.68	\$ 121.68
Increase for Bond Payment	<u>83.96</u>	<u>184.95</u>
Estimated Average Annual Sewer Bill	\$ 205.64	\$ 306.63

These computations are based on estimates and will fluctuate according to actual costs and interest rates.

The mean annual household income for the City of Helena is \$19,199.00. The following shows the percent of mean average annual household income for each estimated sewer rate. Note that the most recent income information is from the 1980 Census.

	<u>Sewer Rate</u>	<u>Percent Mean Annual Income</u>
Current Sewer Rate (Family of 4)	\$121.68	0.63
Citywide Rate Increase with EPA Grant	152.10	0.79
Citywide Rate Increase without EPA Grant	189.82	0.99
Study Area Rate Increase with EPA Grant	205.64	1.07
Study Area Rate Increase without EPA Grant	306.63	1.60

The project entails replacing existing City sewers which are included in the City's sewer maintenance budget. The replacement sewers will require, if anything, less maintenance than the existing sewers. Therefore, maintenance costs have not been included as a consideration in the cost analysis.

3.5 IMPLEMENTATION SCHEDULE

Implementing the recommended improvements will require specific action by the City of Helena. The following table lists the major tasks to be accomplished and the anticipated time schedule:

<u>Task</u>	<u>Schedule</u>
1. Complete Preliminary Amended WWFP Draft Report	July - Aug. 1988
2. City and MDHES Review and Comments on Draft Report	August 1988
3. Incorporate Comments and Submit Final Draft	August 1988
4. Advertise for Public Hearing on Plan	August 1988
5. Hold Public Hearing on Plan	Sept. 19, 1988
6. Incorporate Hearing Comments and Complete Final Report	September 1988
7. City and MDHES Review and Comments on Final Report	September 1988
8. Step 2 + 3 Grant Offer from MDHES and City Acceptance	September 1988
9. Design Additional Manholes for Sewer Inspection	Oct. - Dec. 1988
10. Bid and Award Manhole Contract	February 1989
11. Construct Manhole Project	May - Sept. 1989
12. Design Sewer Replacement Project	Jan. - Oct. 1989
13. Bid Award of Contract and Bond Sale	January 1990
14. Construction of Sewer Replacement Project	May 1990 - Sept. 1991

CHAPTER 4.0 ENVIRONMENTAL CONSIDERATIONS

4.1 INTRODUCTION

This project is an amendment to the Wastewater Facilities Plan for Helena-Helena Valley, Montana that was prepared in 1978. At the time of the original Facilities Plan, a detailed environmental assessment of the entire project was prepared.

This section addressing environmental considerations is intended to focus only on the improvements included under this amendment and is a supplement to the original environmental assessment.

4.2 PROPOSED ACTION

This project consists of replacing or repairing existing sanitary sewer mains and manholes in the south central and upper westside areas of Helena.

The purpose of the project is to replace sewers that have deteriorated due to age and type of material. Original sewers made of cement that were installed around the turn of the century were found to be particularly troublesome.

There will be no new sewers or extensions of sewers into areas that were not previously sewered. The only variation from existing facilities will be replacing flush-tanks and lampholes with conventional manholes so access to sewers can be obtained. Since there are no apparent capacity problems, the size of replacement or repaired facilities will be similar to existing facilities.

4.3 AFFECTED ENVIRONMENT

The project is inside the corporate limits of Helena in the oldest developed area of the City. The area includes both residential and commercial areas which have been sewered for up to 100 years.

Existing sewers are in paved streets. Sanitary sewers share the street right-of-way with other utilities. Most of the residential areas are lined with mature trees in boulevards, and many buildings have architectural and historical value because of their age and construction.

4.4 ENVIRONMENTAL CONSEQUENCES

Construction activities will affect the area during the replacement or repair of sewers. Pavement removal, excavation, sewer or manhole installation, backfilling and compaction, and pavement replacement will be the primary construction activities.

During construction, traffic flow will be interrupted, access to residences and buildings will be hampered, dust and noise levels will be increased, and energy will be expended. These impacts are temporary and will be mitigated by contract documents and specifications that will limit the extent of the disturbances allowed. Since all of the construction will take place in the streets, no damage to adjacent buildings or other facilities will occur.

The existing sewers have deteriorated to the point where sewage leaks through the sewer system and induces contaminants into the ground. In some cases the inverts of the sewers have disintegrated, and the sewage is flowing across open soil which could contaminate the ground water.

Depth to ground water in project area varies considerably. The shallowest ground water occurs along Last Change Gulch which has the highest potential for ground water contamination. In the remaining areas of the project, there is the potential that leaking sewage could enter the storm drain system and be transported with drainage.

Since the project area is in the upper reaches of the Helena Valley, any ground water contamination occurring in the project area could affect large portions of the Helena Valley aquifer. Wells in the valley that are presently used to serve individual households and subdivisions could be affected if the ground water becomes contaminated.

Standard sewer maintenance activities such as jetting and cutting roots are not practical in many of the sewers because of very poor condition of the sewer pipe. This increases the likelihood of plugged sewer lines and backing sewage up into buildings. Many of the buildings in the area have historical value and could be damaged by backed-up sewers.

This project will return the sewers to serviceable condition and limit the leakage from the sewers to acceptable amounts. The new sewers can be adequately maintained and provide better and more reliable service. The long-term effect of the project will be beneficial.

**APPENDIX A: PREAWARD COMPLIANCE REVIEW
REPORT FOR WASTEWATER
TREATMENT CONSTRUCTION GRANTS**



Preaward Compliance Review Report For Wastewater Treatment Construction Grants

Form Approved.
OMB No. 2090-0014.
Expires 8-31-89

Note: Read Instructions on Reverse Before Completing Form.

I. A. Applicant (Name and State) City of Helena Helena, Montana	B. EPA Project No.
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II. A. Are any civil rights lawsuits or complaints pending against applicant?
If "Yes," list those complaints and the disposition of each complaint.

☐ Yes ☒ No

II. B. Have any civil rights compliance reviews been conducted during the two years prior to this application for activities which would receive EPA assistance?
If "Yes," list those compliance reviews and status of each review.

☐ Yes ☒ No

III. A. Population Characteristics	Number of People
1. A. Population of Entire Service Area	23,938
B. Minority Population of Entire Service Area	661
2. A. Population currently served	8,640
B. Minority Population Currently Being Served	204
3. A. Population to be served by project	8,640
B. Minority population to be served by project	204
4. A. Population to remain without service	0
B. Minority population to remain without service	0

B. If entire community under the applicant's jurisdiction is not served under the existing facilities or will not be served under the proposed plan, give reasons why.

The entire city is served by the City's wastewater facilities. However, the sewers that are oldest and in the worst condition are located within this project area, and have the highest priority for repair and replacement.

C. Give the schedule for future construction by which treatment system service will be provided to all inhabitants within applicant's jurisdiction. If there is no schedule, explain why.

All residents are presently being served and will continue to be served.

D. Is another Federal Agency being asked or already providing financial assistance to any construction associated with this project? ☐ Yes ☒ No

If "Yes," list the other Federal Agency(s), describe the associated work and the dollar amount of assistance.

E. Will all new facilities or alterations to existing facilities financed by this grant be designed and constructed to be readily accessible and useable by handicapped persons? ☒ Yes ☐ No

If "No," explain how a regulatory exception (40 CFR 7.70) applies.

IV. Certification

I certify that the information given above is true and correct to the best of my knowledge or belief.
(A willfully false statement is punishable by law: U.S. Code, Title 18, Section 1001)

A. Signature of Authorized Official 	B. Title of Authorized Official Acting City Manager	C. Date 8-25-88
For the U.S. Environmental Protection Agency Regional Director of Civil Rights		Date
<input type="checkbox"/> Approved <input type="checkbox"/> Disapproved		

APPENDIX B: COMPUTER SUMMARY OF STUDY AREA SEWER SYSTEM

Record#	MANHOLE#	MANHOLET	UPSAODR	DOWNADDR	PIPE TYPE	SIZE	LENGTH	AREACODE	MAIN	NR
1	005-3	210-1	PLACER & MAIN	PLACER & MAIN 1W	18 VCP	205	48			
2	006-1	005-2	NORTH MAIN & HELENA 1W	11TH & NORTH MAIN	9 CMT	91	48			5
3	006-2	006-1	HELENA & JACKSON	NORTH MAIN & HELENA	9 CMT	525	48			1
4	007-1	269-1	13TH & JACKSON	14TH & JACKSON	8 VCP	474	48			5
5	007-3T	006-2	LOGAN & HELENA 1W	JACKSON & HELENA 1W	9 CMT	495	48			NR
6	007-4	008-1	LOGAN & HELENA	WARREN & HELENA	9 CMT	563	48			1
7	008-1	009-1	WARREN & HELENA	EWING & HELENA	9 CMT	660	48			NR
8	009-1	010-1	HELENA & EWING	HELENA & RODNEY	10 CMT	650	48			4
9	010-1	011-3	HELENA & RODNEY	HELENA & IDAHO	12 VCP	195	48			NR
10	011-1	299-1	RODNEY & BEDFORD	RODNEY & BEDFORD 1E	8 VCP	370	48			NR
11	011-2	011-1	RODNEY & BEDFORD 1S	RODNEY & BEDFORD	8 VCP	175	48			NR
12	011-3	011-4	HELENA & IDAHO	HELENA & DAKOTA	21 VCP	510	48			NR
13	011-4	012-1	DAKOTA & HELENA	LYNDALE & HELENA 1W	21 VCP	719	48			NR
14	021-2	021-3	15TH & FRONT STREET	16TH & FRONT STREET	24 VCP	225	48			NR
15	022-1	023-2	11TH & WARREN	12TH & WARREN	9 CMT	360	48			NR
16	023-1	024-2	13TH & WARREN	14TH & WARREN	9 CMT	441	48			1
17	023-2	023-1	12TH & WARREN	13TH & WARREN	9 CMT	360	48			1
18	024-2	008-1	14TH & WARREN	HELENA AVE & WARREN	9 CMT	360	48			NR
19	028-1	029-2	11TH & EWING	12TH & EWING	9 CMT	441	48			1
20	029-1	030-1	13TH & EWING	14TH & EWING	9 CMT	360	48			1
21	029-2	029-1	14TH & EWING	15TH & EWING	9 CMT	476	48			1
22	030-1	031-1	15TH & EWING	HELENA & EWING	9 CMT	392	48			1
23	031-1	009-1	11TH & RODNEY 1S	12TH & RODNEY 1S	9 CMT	360	48			1
24	041-1	042-1	12TH & RODNEY 1S	13TH & RODNEY	9 CMT	417	48			1
25	042-1	042-2	13TH & RODNEY	14TH & RODNEY	10 CMT	407	48			2
26	042-2	043-2	13TH & RODNEY 1W	13TH & RODNEY	6 VCP	350	48			NR
27	042-2L	042-2	15TH & RODNEY	16TH & RODNEY	10 CMT	364	48			3
28	043-1	044-1	14TH & RODNEY	15TH & RODNEY	10 CPN	470	48			1
29	043-2	043-1	16TH & RODNEY	16TH & RODNEY 1N	10 CMT	250	48			1
30	044-1	044-1A	16TH & RODNEY 1N	HELENA & RODNEY	10 CMT	295	48			2
31	044-1A	010-1	11TH & DAVIS	12TH & DAVIS	12 VCP	358	48			4
32	050-1	051-1	12TH & DAVIS	14TH & DAVIS 1N	12 VCP	341	48			5
33	051-1	051-2	12TH & DAVIS	14TH & DAVIS 1S	12 VCP	214	48			5
34	051-2	052-2A	15TH & DAVIS 1N	15TH & DAVIS 1N	12 VCP	330	48			NR
35	052-1	053-2	14TH & DAVIS 1N	15TH & DAVIS 1S	12 VCP	293	48			5
36	052-2	052-1	14TH & DAVIS 1S	14TH & DAVIS 1N	12 VCP	217	48			5
37	052-2A	052-2	15TH & DAVIS 2N	IDAHO & DAVIS	12 VCP	530	48			5
38	053-1	054-1	15TH & DAVIS 1N	15TH & DAVIS 2N	12 VCP	193	48			5
39	053-2	053-1	IDAHO & DAVIS	IDAHO & HELENA AVE	15 VCP	322	48			5
40	054-1	011-3	DAVIS & DAKOTA 1W	DAVIS & IDAHO	8 CPN	405	48			NR
41	054-1L	054-1	TOWNSEND & MONTANA 1W	TOWNSEND & MONTANA	6 VCP	301	48			NR

Record#	MANHOLE#	MANHOLE#	UPSAADOR	OWNADOR	LENGTH	SIZE	PIPETYPE	AREACODE	MAINRAT#
61	172-2	172-4	GETCHELL & LYNDALE IE IN	GETCHELL & LYNDALE IE 2N	124	24	RCP	48	NR
62	172-3	172-2	LYNDALE & GETCHELL IE	LYNDALE & GETCHELL IE IN	48	15	RCP	48	NR
63	172-4	363-1B	16TH & FRONT STREET IW	16TH & FRONT IN	325	21	RCP	48	NR
64	188-1	204-1	LAWRENCE & FULLER	PLACER & FULLER	525	21	VCP	48	NR
65	204-1	205-1	FULLER & PLACER	FULLER & NEILL	603	24	VCP	48	3
66	204-1L	204-1	PLACER & FULLER IW	PLACER & FULLER	215	8	VCP	48	NR
67	205-1	205-2	FULLER & NEILL	NEILL & FRONT	188	24	VCP	48	5
68	205-2	206-1	NEILL & FRONT	13TH & FRONT	550	24	VCP	48	NR
69	206-1	207-1	13TH & FRONT	14TH & FRONT	440	24	VCP	48	NR
70	206-1B	206-1	13TH & FRONT STREET IE	13TH & FRONT	252	8	VCP	48	NR
71	207-1	208-1	14TH & FRONT	15TH & FRONT	460	24	VCP	48	NR
72	208-1	433-1	15TH & FRONT ST	16TH & FRONT ST	225	24	VCP	48	NR
73	210-1	204-1	100 ALLEY PLACER	FULLER & PLACER	210	18	VCP	48	NR
74	210-1L	210-1	100 ALLEY PLACER IS	100 ALLEY PLACER	227	8	VCP	48	NR
75	213-1	214-1	SANDERS & PHONEIX	HARRIS & PHOENIX	471	24	VCP	48	NR
76	245-1	051-1	12TH & RALIEGH	12TH & DAVIS	222	8	VCP	48	NR
77	245-1A	245-1	12TH & HOBACK IW	12TH & RALIEGH	475	8	VCP	48	5
78	245-1L	245-1	12TH & RALIEGH IS	12TH & RALIEGH	225	8	VCP	48	NR
79	245-3	250-1A	12TH & HOBACK IE	12TH & IDAHO	390	8	VCP	48	5
80	250-1	066-1	12TH & DAKOTA	12TH & MONTANA	425	8	VCP	48	NR
81	250-1A	250-1	12TH & IDAHO	12TH & DAKOTA	451	8	VCP	48	3
82	260-1	260-2	JACKSON & LYNDALE	17TH & LYNDALE	333	8	VCP	48	NR
83	260-2	260-3	LYNDALE & LOGAN	LYNDALE & WARREN	367	10	VCP	48	5
84	260-3	261-1	WARREN & LYNDALE	EWING & LYNDALE	431	10	VCP	48	NR
85	261-1	262-1	EWING & LYNDALE	BEDFORD & LYNDALE	585	10	VCP	48	NR
86	262-1	263-1	BEDFORD & LYNDALE	DODGE & LYNDALE	332	12	VCP	48	NR
87	263-1	061-1	DODGE & LYNDALE	HELENA & MONTANA IN	342	12	VCP	48	NR
88	264-1	264-2	14TH & LOGAN	15TH & LOGAN	545	8	VCP	48	5
89	264-1	264-2A	14TH & LOGAN	15TH & LOGAN IS	250	8	VCP	48	NR
90	264-2	265-1	15TH & LOGAN	16TH & LOGAN	385	8	VCP	48	NR
91	264-2A	264-2	15TH & LOGAN IS	15TH & LOGAN	170	8	VCP	48	NR
92	265-1	266-1	16TH & LOGAN	17TH & LOGAN	510	8	VCP	48	NR
93	266-1	260-2	17TH & LOGAN	LOGAN & EAST LYNDALE	184	8	VCP	48	NR
94	267-1T	267-2	HELENA & WARREN IN	16TH & WARREN	435	8	VCP	48	NR
95	267-2	268-1	16TH & WARREN	17TH & WARREN	510	8	VCP	48	5
96	268-1	260-3	17TH & WARREN	LYNDALE & WARREN	362	8	VCP	48	NR
97	269-1	270-1	14TH & JACKSON	15TH & JACKSON	471	8	VCP	48	NR
98	269-1L	269-1	14TH & JACKSON IE	14TH & JACKSON	180	8	VCP	48	NR
99	270-1	270-2	15TH & JACKSON	16TH & JACKSON	385	8	VCP	48	NR
100	270-2	260-1	16TH & JACKSON	LYNDALE & JACKSON	526	8	VCP	48	NR
101	278-1	062-2	MISSOULA & DAKOTA	MISSOULA & MONTANA	425	8	VCP	48	NR
102	279-1	278-1	MISSOULA & IDAHO	MISSOULA & DAKOTA	464	8	VCP	48	NR
103	280-1	279-1	MISSOULA & HOBACK	MISSOULA & IDAHO	460	8	VCP	48	NR
104	280-1L	280-1	MISSOULA & HOBACK IS	MISSOULA & HOBACK	101	8	VCP	48	NR
105	283-2	119-2	HENRY & GETCHELL IW	LYNDALE & GETCHELL	280	8	VCP	48	NR
106	284-1	284-2	IDAHO & PROSPECT	DAKOTA & PROSPECT	462	8	VCP	48	5
107	284-2	065-2	DAKOTA & PROSPECT	MONTANA & PROSPECT	424	8	VCP	48	NR
108	285-1T	284-1	HOBACK & PROSPECT IE	IDAHO & PROSPECT	402	8	VCP	48	NR
109	286-1	286-2	IDAHO & BUTTE	DAKOTA & BUTTE	402	8	VCP	48	NR
110	286-2	065-1	DAKOTA & BUTTE	BUTTE & MONTANA	424	8	VCP	48	NR
111	287-1T	286-1	BUTTE & HOBACK IE	BUTTE & IDAHO	426	8	VCP	48	NR
112	299-1	262-1	ROONEY & BEDFORD IE	BEDFORD & LYNDALE	372	8	VCP	48	NR
113	325-1	006-2	12TH & JACKSON	HELENA AVE & JACKSON	160	8	VCP	48	NR
114	325-1A	325-1	12TH & JACKSON IS	12TH & JACKSON	282	8	VCP	48	NR
115	335-1	335-2	IDAHO & LIVINGSTON	LIVINGSTON & DAKOTA IW	240	8	VCP	48	NR
116	335-2	335-3	LIVINGSTON & DAKOTA IW	LIVINGSTON & DAKOTA	268	8	VCP	48	NR
117	335-2L	335-2	TOWNSEND & LIVINGSTON IE	LIVINGSTON & DAKOTA IW	276	6	VCP	48	NR
118	335-3	060-2	LIVINGSTON & DAKOTA	LIVINGSTON & MONTANA	392	8	VCP	48	NR
119	339-1	339-2	BILLINGS & IDAHO IE	BILLINGS & DAKOTA	424	8	VCP	48	2
120	339-2	062-1	BILLINGS & DAKOTA	BILLINGS & MONTANA	424	8	VCP	48	NR

Record#	MANHOLE#	MANHOLET	UPSADDR	DWNADDR	LENGTH	SIZE	PIPE	TYPE	AREA	CODE	HA	IN	RATE
121	339-2L	339-2	BILLINGS & DAKOTA IS	BILLINGS & DAKOTA	185	8	VCP	48	NR				
122	342-1	342-2	HELENA & EWING IN	17TH & EWING	424	8	VCP	48	NR				
123	342-2	261-1	17TH & EWING	LYNDAL & EWING	590	8	VCP	48	NR				
124	348-1	348-2	PARK & HAUSER IS	PARK & HAUSER	325	8	VCP	48	NR				
125	348-2	348-4	HAUSER & PARK	HAUSER & KESSLER IE	170	8	VCP	48	NR				
126	348-3	348-2	HAUSER & PARK IN	HAUSER & PARK	389	8	VCP	48	NR				
127	348-4	348-5	HAUSER & KESSLER IW	HAUSER & KESSLER	158	8	VCP	48	NR				
128	348-5	118-1	KESSLER & HAUSER	GETCHELL & KESSLER IE	53	8	VCP	48	NR				
129	348-6	348-5	KESSLER & HAUSER IN	KESSLER & HAUSER	388	8	VCP	48	NR				
130	349-1	349-2	GETCHELL & STUART 2S	GETCHELL & STUART IS	202	6	VCP	48	NR				
131	349-2	117-2	GETCHELL & STUART IS	GETCHELL & STUART IN	200	6	VCP	48	NR				
132	359-1	359-2	NEILL AVENUE & NORTH MAIN	13TH & NORTH MAIN	405	8	CPN	48	NR				
133	359-2	359-3	13TH & NORTH MAIN	14TH & NORTH MAIN	445	12	CPN	48	NR				
134	359-3	359-4	14TH & NORTH MAIN	15TH & NORTH MAIN	475	12	CPN	48	NR				
135	359-4	360-1	15TH & MAIN	15TH & MAIN IW	261	8	VCP	48	NR				
136	360-1	208-1	15TH & MAIN IW	15TH & FRONT ST	325	8	VCP	48	NR				
137	433-1	363-1B	16TH & FRONT	16TH & FRONT IN	22	24	VCP	48	NR				
138	433-2	433-1	16TH & MAIN	16TH & FRONT ST IE	446	8	VCP	48	NR				
139	433-2L	433-2	16TH & MAIN IE	16TH & MAIN 2E	105	8	VCP	48	NR				
140	443-1A	443-1	16TH & NORTH MAIN	LYNDAL & MAIN	355	12	DIP	48	NR				
141	443-1B	443-1A	15TH & NORTH MAIN IN	16TH & NORTH MAIN	300	12	DIP	48	NR				
142	001-6A	UR71-06	CUTLER & WEST MAIN IW	CUTLER & WEST MAIN	44	9	CMT	58	1				
143	002-1	002-2	BROADWAY & MALL IS	BROADWAY & LAST CHNCE	254	15	VCP	58	NR				
144	002-2	002-3	BROADWAY & MALL	BROADWAY & MALL IN	133	18	VCP	58	5				
145	002-3	003-4	EDWARDS & MALL	GRAND & MALL	188	18	VCP	58	5				
146	003-1	137-2	6TH & MAIN	6TH & FULLER	165	24	RCP	58	NR				
147	003-1	004-4	6TH & LAST CHANCE	7TH & MAIN ST	454	9	VCP	58	3				
148	003-2	003-1	GRAND & MALL	6TH & LAST CHANCE	471	18	VCP	58	NR				
149	003-4	003-2	GRAND & MALL	6TH & MALL IS	400	18	VCP	58	5				
150	004-1	004-1	7TH & ALLEN IN	7TH & JACKSON	147	8	PVC	58	5				
151	004-1B	004-1	7TH & ALLEN IN	7TH & ALLEN IN	307	8	VCP	58	5				
152	004-2	004-4	7TH & JACKSON ST	7TH & LAST CHANCE GUL	141	9	VCP	58	NR				
153	004-3	005-3	LAWRENCE & MAIN	PLACER & MAIN	420	12	VCP	58	3				
154	004-3A	004-3	LAWRENCE & LOGAN IW	LAWRENCE & MAIN	350	8	VCP	58	NR				
155	004-3B	004-3A	LAWRENCE & LOGAN IE	LAWRENCE & LOGAN IW	420	8	VCP	58	5				
156	004-3C	004-3	LAWRENCE & MAIN IW	LAWRENCE & MAIN	300	8	VCP	58	NR				
157	004-4	004-3	8TH & LAST CHANCE	LAWRENCE & LAST CHANCE	203	12	VCP	58	3				
158	005-1	005-2	11TH & JACKSON	11TH & MAIN	175	8	VCP	58	NR				
159	005-2	005-3	11TH & MAIN	PLACER & MAIN	339	12	VCP	58	5				
160	017-1	002-2	JACKSON & BROADWAY	MAIN & BROADWAY	168	8	CMT	58	NR				
161	018-1	004-2	6TH & JACKSON	7TH & JACKSON	432	9	CMT	58	1				
162	018-2	018-1	JACKSON & GRAND	6TH & JACKSON	444	9	CMT	58	NR				
163	018-3	018-2	JACKSON STREET & GRAND ST IW	JACKSON STREET & GRAND ST	129	8	PVC	58	NR				
164	018-3A	018-3	JACKSON STREET & GRAND 2W	JACKSON STREET & GRAND IW	104	8	PVC	58	NR				
165	020-1	197-2	WARREN & STATE	WARREN & MILLER	116	12	PVC	58	NR				
166	020-2	020-1	WARREN & CUTLER	WARREN & STATE	240	8	CMT	58	NR				
167	020-3	020-2	WARREN & PINE	WARREN & CUTLER	165	8	VCP	58	NR				
168	021-1	021-2	7TH & WARREN 2N IE E	7TH & WARREN 2N	285	8	CMT	58	NR				
169	021-2	021-3A	7TH & WARREN 2N	7TH & WARREN IN	30	8	CMT	58	NR				
170	021-3	021-4	7TH & WARREN	7TH & WARREN IW	118	8	CMT	58	NR				
171	021-3A	021-3	7TH & WARREN IN	7TH & WARREN	120	8	CMT	58	NR				
172	021-3L	021-3	7TH & WARREN IW	7TH & WARREN ST	120	9	CMT	58	NR				
173	021-4	004-1	7TH & WARREN IW	7TH & ALLEN IN	311	9	CMT	58	5				
174	022-2	022-1	10TH & WARREN	11TH & WARREN	276	8	PVC	58	5				
175	022-3	022-2	9TH & WARREN	10TH & WARREN (CLOSED)	277	9	CMT	58	4				
176	022-3T	022-3	9TH & WARREN IS	9TH & WARREN	134	9	CMT	58	NR				
177	025-1	020-2	EWING & STATE	WARREN & STATE	245	8	CMT	58	NR				
178	025-2	025-1	CUTLER & STATE	STATE & EWING	254	8	CMT	58	NR				
179	026-1	120-1	BROADWAY & EWING	BROADWAY & WARREN	350	8	CMT	58	NR				
180	026-1A	026-1	BROADWAY & EWING IS	BROADWAY & EWING	254	8	CMT	58	NR				

Record#	MANHOLE#	MANHOLET	UP-SADDOR	DWN-ADDR	LENGTH	SIZE	PIPETYPE	AREACODE	MAINRATE
181	026-2	026-3	EWING & MILLER IN	EWING & MILLER	235	8	CMT	58	NR
182	026-2A	026-2	EWING & MILLER 2N	EWING & MILLER IN	239	8	CMT	58	2
183	026-3	197-2	EWING & MILLER	WARREN & MILLER	250	8	CMT	58	NR
184	027-2	027-4	ROONEY & BRECKENRIDGE IN	5TH & WEST EWING IS	291	8	CMT	58	NR
185	027-3	132-3	5TH & WEST EWING	5TH & WARREN	362	9	CMT	58	1
186	027-4	027-3	5TH & WEST EWING IS	5TH & WEST EWING	135	9	CMT	58	1
187	027-5	027-4	5TH & WEST EWING IS IE	5TH & WEST EWING IS	75	9	CMT	58	NR
188	027-6	027-5	BRECKENRIDGE & ROONEY IW	5TH & WEST EWING IS IE	150	9	CMT	58	NR
189	027-7	027-6	BRECKENRIDGE & ROONEY IW IS	BRECKENRIDGE & ROONEY IW	200	8	CMT	58	NR
190	028-2	028-1	10TH & EWING	10TH & EWING	276	8	CMT	58	2
191	028-3T	028-2	9TH & EWING IN	10TH & EWING	217	8	CMT	58	NR
192	033-1	034-1	CLANCY & ROONEY	CLANCY & ROONEY	509	8	CMT	58	5
193	033-1A	033-1	CLANCY & SPARTA IE	CLANCY & ROONEY	550	8	VCP	58	NR
194	033-2	033-1	ROONEY & FLORA IN	ROONEY & CLANCY	305	8	CMT	58	5
195	033-3	033-2	ROONEY & FLORA	ROONEY & FLORA IN	242	8	CMT	58	5
196	034-1	035-1	ROONEY & PINE	ROONEY & STATE	435	8	CMT	58	5
197	035-1	036-1	ROONEY & STATE	ROONEY & MILLER IN	489	9	CMT	58	5
198	036-1	037-2	BROADWAY & ROONEY IS	BROADWAY & ROONEY	415	9	CMT	58	5
199	037-1	047-1	400 ALLEY BROADWAY	BROADWAY & DAVIS	226	8	CMT	58	NR
200	037-1A	037-1	400 ALLEY BROADWAY IS	400 ALLEY BROADWAY	438	6	VCP	58	NR
201	037-2	038-2	ROONEY & BROADWAY	ROONEY & BRECKENRIDGE	367	9	CMT	58	2
202	038-1	039-2	5TH & ROONEY	6TH & ROONEY	266	9	CMT	58	4
203	038-2	038-1	ROONEY & BRECKENRIDGE	5TH & ROONEY	268	9	CMT	58	4
204	039-1	040-2	6TH & ROONEY	8TH & ROONEY	277	9	CMT	58	4
205	039-2	039-1	7TH & ROONEY	7TH & ROONEY	266	9	CMT	58	5
206	040-1	041-2	9TH & ROONEY	10TH & ROONEY	275	9	CMT	58	1
207	040-2	040-1	8TH & ROONEY	9TH & ROONEY	276	9	VCP	58	1
208	041-2	041-1	10TH & ROONEY IN	11TH & ROONEY	241	9	CMT	58	2
209	046-1	047-1	DAVIS & HILLSDALE	DAVIS & BROADWAY	315	8	VCP	58	NR
210	046-2	046-1	HIGHLAND & DAVIS	HILLSDALE & DAVIS	314	8	VCP	58	NR
211	046-3	046-2	STATE & DAVIS	HIGHLAND & DAVIS	322	8	VCP	58	NR
212	046-4	046-3	STATE & SPENCER	DAVIS & STATE	316	6	VCP	58	NR
213	047-1	047-2	DAVIS & BROADWAY	DAVIS & BRECKENRIDGE	296	9	VCP	58	NR
214	047-2	048-3	DAVIS & BRECKENRIDGE	5TH & DAVIS	274	9	VCP	58	3
215	048-1	047-2	BRECKENRIDGE & DAVIS IW	DAVIS & BRECKENRIDGE	224	8	CMT	58	1
216	048-2	048-3	5TH & DAVIS IW	5TH & DAVIS	227	8	CMT	58	1
217	048-3	048-5	5TH & DAVIS	5TH & DAVIS IN	50	9	VCP	58	5
218	048-4	049-4	6TH & DAVIS	6TH & DAVIS IN (GHOST MH)	267	9	VCP	58	5
219	048-5	048-4	5TH & DAVIS IN	6TH & DAVIS	226	9	VCP	58	3
220	049-1	050-3	8TH & DAVIS	8TH & DAVIS IN	269	9	VCP	58	3
221	049-2	049-1	7TH & DAVIS	8TH & DAVIS	278	9	VCP	58	3
222	049-3T	049-2	7TH & RODNEY IE	7TH & DAVIS	252	9	CMT	58	NR
223	049-4	049-2	6TH & DAVIS IN (GHOST MH)	7TH & DAVIS	48	8	CMT	58	NR
224	050-2	050-1	9TH & DAVIS IN	11TH & DAVIS	361	12	VCP	58	5
225	050-3	050-2	9TH & DAVIS IS	9TH & DAVIS IN	240	12	VCP	58	5
226	055-1	056-1	BLAKE & HIGHLAND	BLAKE & HILLSDALE	269	8	CMT	58	1
227	055-2	057-2	STATE & BLAKE	STATE & CHAUCER	421	8	CMT	58	NR
228	055-2	055-1	STATE & STATE	BLAKE & HIGHLAND	273	8	CMT	58	1
229	055-3	055-2	3RD & BLAKE	BLAKE & STATE	271	8	CMT	58	1
230	056-1	046-1	HILLSDALE & BLAKE	HILLSDALE & DAVIS	340	8	CMT	58	1
231	057-1	058-2	CHAUCER & HIGHLAND	CHAUCER & HILLDALE	271	9	VCP	58	NR
232	057-2	057-1	CHAUCER & STATE	CHAUCER & HIGHLAND	271	9	VCP	58	5
233	057-3	057-2	3RD & CHAUCER	CHAUCER & STATE	270	9	CMT	58	1
234	058-1	123-1	BROADWAY & CHAUCER	BROADWAY & BEATTIE	450	9	VCP	58	NR
235	058-2	058-1	CHAUCER & HILLSDALE	CHAUCER & BROADWAY	270	9	VCP	58	NR
236	059-1	136-2	5TH & K STREET IE	5TH & K STREET 2E	171	15	VCP	58	5
237	059-2	059-1	BRECKENRIDGE & K ST IE	5TH & K ST IE	271	15	VCP	58	NR
238	059-3	059-2	BROADWAY & STABERN	BRECKENRIDGE & ALTA IE	269	15	VCP	58	NR
239	071-1	P75-11-1	PARK & CRUSE IN	PARK & CRUSE 2N	70	10	PVC	58	NR
240	071-2	071-1	PARK & CRUSE IS	PARK CRUSE IN	300	9	CMT	58	NR

LENGTH SIZE PIPE TYPE AREACODE MAIN RATE

Record#	MANHOLE#	MANHOLET	UPSPADDER	DWNADDER	LENGTH	SIZE	PIPE TYPE	AREACODE	MAIN RATE
241	072-1	071-2	CRUSE & PARK 2S	CRUSE & PARK 1S	325	9	CHT	58	NR
242	073-1	073-2	502 WEST MAIN 1S	BY 502 WEST MAIN	487	6	CHT	58	NR
243	073-2	072-1	502 WEST MAIN ST	CRUSE & PARK 2S	502	6	CHT	58	NR
244	074-1	074-2	600 BLK & WEST MAIN	600 WEST MAIN	365	6	CHT	58	NR
245	074-2	073-1	600 BLOCK WEST MAIN IN	500 BLOCK WEST MAIN	485	6	CHT	58	NR
246	075-1T	074-1	LAST MANHOLE ON SOUTH MAIN	600 BLOCK WEST MAIN	400	6	CHT	58	1
247	076-1T	076-2	REEDERS ALLEY & S PARK 2S	REEDERS ALLEY & S PARK 1S	361	8	CHT	58	NR
248	076-2	076-3	REEDERS ALLEY & S PARK 1S	REEDERS ALLEY & S PARK	216	8	CHT	58	NR
249	076-3	076-4	REEDERS ALLEY & S PARK	REEDERS ALLEY & S PARK IN	210	8	CHT	58	1
250	076-4	077-1	REEDERS ALLEY & SOUTH PARK IN	SOUTH PARK & WONG IN	415	8	CHT	58	NR
251	077-1	078-2	SOUTH PARK & WONG IN	SOUTH PARK & WONG 2N	324	9	CHT	58	NR
252	077-1L	077-1	SOUTH PARK & WONG IE	SOUTH PARK & WONG IN	190	8	CHT	58	1
253	078-1	002-3	EDWARDS & PARK	EDWARDS & MALL SITE	320	10	CHT	58	NR
254	078-2	078-1	SOUTH PARK & EDWARDS 1S	SOUTH PARK & EDWARDS	275	9	CHT	58	5
255	079-1	079-2	PARK & CLARKE 1S	PARK & CLARKE	145	9	CHT	58	NR
256	079-2	080-1	PARK & CLARKE	PARK & LAWRENCE	420	9	CHT	58	NR
257	079-3	078-1	EDWARDS & PARK IN	EDWARDS & PARK	206	9	VCP	58	NR
258	080-1	188-1	LAWRENCE & PARK	LAWRENCE & FULLER	317	12	VCP	58	NR
259	080-1	081-1	PARK & LAWRENCE	PARK & PLACER	557	9	CHT	58	1
260	084-1	085-1	BENTON & ADAMS	BENTON & EDWARDS	406	8	CHT	58	2
261	084-2T	084-1	ADAMS & BENTON 1S	BENTON & ADAMS	242	8	CHT	58	1
262	085-1	078-1	EDWARDS & BENTON	EDWARDS & PARK	324	8	CHT	58	4
263	085-1	086-2	BENTON & EDWARDS	BENTON & EDWARDS IN	246	8	CHT	58	NR
264	086-1	079-2	BENTON & CLARKE	PARK & CLARKE	250	9	VCP	58	2
265	086-1	087-1	CLARKE & BENTON	LAWRENCE & BENTON	393	9	CHT	58	4
266	086-2	086-1	BENTON & EDWARDS IN	BENTON & CLARKE	211	8	CHT	58	NR
267	087-1	080-1	LAWRENCE & BENTON	LAWRENCE & PARK	260	9	VCP	58	4
268	092-1	084-1	JEFFERSON & ADAMS	BENTON & ADAMS	282	8	CHT	58	5
269	092-1	093-2	ADAMS & JEFFERSON	MING & JEFFERSON	374	9	VCP	58	NR
270	092-1L	092-1	JEFFERSON & ADAMS 1S	JEFFERSON & ADAMS	418	6	CHT	58	5
271	093-1	094-1	MING & OLIVE	OLIVE & WASHINGTON	277	9	VCP	58	NR
272	093-2	093-1	JEFFERSON & MING 1S	OLIVE & MING	55	9	VCP	58	5
273	094-1	094-3	OLIVE & WASHINGTON	CLARK & OLIVE	454	9	VCP	58	NR
274	094-1L	094-1	OLIVE & WASHINGTON 1W	OLIVE & WASHINGTON	200	8	VCP	58	5
275	094-3	086-1	CLARKE & OLIVE	CLARKE & BENTON	141	12	VCP	58	4
276	095-1	092-1	ADAMS & HOWIE	ADAMS & JEFFERSON	271	8	CHT	58	5
277	095-1	096-1	ADAMS & HOWIE	MING & HOWIE	390	9	VCP	58	NR
278	095-2T	095-1	ADAMS & HOWIE 1S	ADAMS & HOWIE	253	6	CHT	58	5
279	096-1	097-1	MING & HOWIE	CLARKE & HOWIE	548	9	VCP	58	5
280	097-1	094-3	CLARK & HOWIE	CLARK & OLIVE	406	9	VCP	58	1
281	097-1	098-1	HOWIE & CLARK	HOWIE & LAWRENCE	325	8	CHT	58	2
282	115-1	115-2	SHILAND & BROADWAY S	SHILAND & BROADWAY	330	8	CHT	58	5
283	115-2	125-1	BROADWAY & SHILAND	BROADWAY & HOBACK	300	9	VCP	58	2
284	120-1	017-1	WARREN & BROADWAY	JACKSON & BROADWAY	349	8	CHT	58	NR
285	120-2T	120-1	WARREN & BROADWAY 1S	WARREN & BROADWAY	330	8	CHT	58	NR
286	121-1	026-1	BROADWAY & ROONEY 1W	BROADWAY & EWING	293	8	CHT	58	NR
287	122-1	047-1	BROADWAY & DAVIS IE	BROADWAY & DAVIS	238	8	CHT	58	1
288	122-2	122-1	BROADWAY & CHAUCER 1W	BROADWAY & DAVIS IE	275	8	CHT	58	NR
289	123-1	124-1	BROADWAY & BEATTIE	BROADWAY & RALEIGH	456	9	VCP	58	5
290	124-1	115-2	BROADWAY & RALEIGH	BROADWAY & SHILAND	268	9	VCP	58	NR
291	125-1	126-1	BROADWAY & HOBACK	BROADWAY & ALTA	276	9	VCP	58	5
292	125-1L	125-1	BROADWAY & HOBACK 1S	BROADWAY & HOBACK	334	8	VCP	58	NR
293	126-1	059-3	BROADWAY & ALTA	BROADWAY & STABERN	266	9	VCP	58	5
294	126-1L	126-1	ALTA & HIGHLAND	ALTA & BROADWAY	350	8	VCP	58	NR
295	127-1	132-3	400 ALLEY NORTH WARREN IE	5TH WARREN	140	8	PVC	58	NR
296	127-2T	127-1	400 ALLEY NORTH WARREN	400 ALLEY NORTH WARREN	247	8	CHT	58	5
297	127-3	127-1	WARREN & BRECKENRIDGE	400 ALLEY NORTH WARREN	133	8	PVC	58	NR
298	127-4	127-3	BRECKENRIDGE & EWING	BRECKENRIDGE & WARREN	302	8	PVC	58	NR
299	128-1	047-2	BRECKENRIDGE & GEM 2W	BRECKENRIDGE & DAVIS	357	8	CHT	58	1
300	128-2	128-1	BRECKENRIDGE & GEM 1W	BRECKENRIDGE & GEM 2W	243	8	CHT	58	1

LENGTH SIZE PIPE TYPE AREACODE MAIN RATE

DWNADDER

UPSADDER

MANHOLET

MANHOLEF

Record#

301 129-1

301	129-1	BRECKENRIDGE & BEATTIE 1W	256	8	VCP	58	NR
302	129-2	BRECKENRIDGE & BEATTIE 1W	469	9	CMT	58	1
303	129-3	BRECKENRIDGE & RALEIGH	462	9	CMT	58	1
304	130-1	BRECKENRIDGE & HOBOK 1W	376	9	CMT	58	3
305	131-1	BRECKENRIDGE & ALTA	268	9	CMT	58	4
306	132-1	6TH & ALLEN	137	8	CMT	58	1
307	132-3	5TH & WARREN	275	8	PVC	58	5
308	133-1	5TH & GEM 1W	378	8	CMT	58	1
309	133-2T	5TH & BEATTIE 1W	341	8	CMT	58	NR
310	134-1	5TH & BEATTIE IE	220	8	CMT	58	1
311	134-1A	5TH & RALEIGH 1W	315	8	CMT	58	1
312	134-2	5TH & RALEIGH IE	445	8	CMT	58	1
313	135-1	5TH & HOBACK	338	8	CMT	58	4
314	136-1	5TH & K STREET	214	9	CMT	58	5
315	136-2	5TH & K STREET 2E	267	15	VCP	58	NR
316	137-1T	6TH & FULLER 1W	288	8	CMT	58	NR
317	137-2	6TH & FULLER AVE.	490	21	VCP	58	1
318	138-1	6TH & WARREN	320	8	CMT	58	1
319	138-2	6TH & EWING	356	8	CMT	58	1
320	139-1T	6TH & EWING IE	315	8	CMT	58	NR
321	139-2T	6TH & DAVIS 1W	257	9	CMT	58	NR
322	140-1	6TH & DAVIS 2E	234	8	CMT	58	NR
323	140-2T	6TH & BEATTIE 1W	280	8	CMT	58	NR
324	141-1T	6TH & BEATTIE IE	407	8	CMT	58	NR
325	142-1	6TH & RALEIGH	568	8	CMT	58	4
326	142-2	6TH & HOBACK	336	9	CMT	58	4
327	143-1	6TH & K STREET	383	9	CMT	58	1
328	143-2	6TH & K IE	170	15	VCP	58	NR
329	144-1	7TH & WARREN IE	281	8	CMT	58	1
330	144-2	8TH & WARREN IS	30	9	CMT	58	1
331	144-3T	300 ALLEY EWING 1W	285	9	CMT	58	NR
332	145-1	8TH & RODNEY 1W	215	8	CMT	58	1
333	145-2	8TH & RODNEY	337	8	CMT	58	1
334	146-1	8TH & BEATTIE	391	8	CMT	58	2
335	146-1L	8TH & BEATTIE IS	320	8	VCP	58	NR
336	147-1	8TH & RALEIGH 1W	405	8	CMT	58	1
337	148-1	8TH & RALEIGH IE	498	9	CMT	58	2
338	148-2	8TH & HOBACK	459	9	CMT	58	4
339	149-1	8TH & IDAHO	364	9	CMT	58	4
340	150-1	8TH & DAKOTA 1W	207	15	VCP	58	NR
341	151-1	9TH & EWING	366	8	CMT	58	4
342	151-2T	9TH & EWING IE	285	8	CMT	58	NR
343	151-3	400 ALLEY WARREN IE	20	9	CMT	58	NR
344	151-4	400 ALLEY EWING 1W	297	8	CMT	58	1
345	151-5T	400 ALLEY RODNEY	325	8	CMT	58	NR
346	152-1	9TH & BEATTIE	192	9	CMT	58	NR
347	152-1L	9TH & BEATTIE IS	154	6	VCP	58	NR
348	152-2T	9TH & RALEIGH 1W	406	8	CMT	58	NR
349	153-1T	9TH & RALEIGH IE	491	8	CMT	58	NR
350	153-2	9TH & HOBACK	469	8	CMT	58	1
351	154-1	9TH & IDAHO	455	8	CMT	58	1
352	155-1	9TH & DAKOTA	366	21	VCP	58	NR
353	156-1T	10TH & RODNEY 1W	276	8	CMT	58	NR
354	157-1	300 ALLEY 7TH	274	8	CMT	58	1
355	157-1L	300 ALLEY 7TH 1W	85	6	CPN	58	NR
356	157-2	300 ALLEY 6TH IN	220	9	CMT	58	NR
357	160-1T	11TH & EWING 1W	294	9	CMT	58	NR
358	161-2	11TH & RALEIGH 1W	357	8	CMT	58	1
359	162-1	11TH & RALEIGH IE	495	8	CMT	58	4
360	162-2	11TH & HOBACK	468	9	CMT	58	1
		11TH & IDAHO					

Record#	MANHOLE#	MANHOLET	UPSAADOR	OWNSAADOR	LENGTH	SIZE	PIPETYPE	AREACODE	MAINRAT
361	163-1	164-1	11TH & IDAHO	11TH & DAKOTA	452	9	CNT	58	3
362	164-1	066-2	11TH & DAKOTA	11TH & MONTANA	425	18	VCP	58	NR
363	189-3	189-3	HARRISON & CLARKE IN	HARRISON & CLARKE	200	8	CNT	58	2
364	189-2T	189-3	HARRISON & CLARKE IW	HARRISON & CLARKE	267	8	CNT	58	1
365	189-3	097-1	HARRISON & CLARKE	HOWIE & CLARKE	467	8	CNT	58	1
366	191-1	093-1	MING & HOWIE	MING & OLIVE	351	9	VCP	58	NR
367	191-2T	085-1	EDWARDS & BENTON IW	EDWARDS & BENTON	119	6	VCP	58	NR
368	193-1T	095-1	ADAMS & HARRISON	ADAMS & HOWIE	265	8	CNT	58	NR
369	195-1T	055-1	HIGHLAND & BLAKE IE	HIGHLAND & BLAKE	222	8	CNT	58	NR
370	195-2T	057-1	HIGHLAND & CHAUCER IW	HIGHLAND & CHAUCER	213	8	CNT	58	NR
371	197-2	U71-0-3	WARREN & MILLER	NE CORNER ANDERSON APTS	147	12	PVC	58	NR
372	198-1T	198-2A	MILLER & RODNEY 2W IN	MILLER & RODNEY 2W	216	8	CNT	58	1
373	198-2	198-2A	MILLER & RODNEY IW	MILLER & RODNEY 2W	45	8	CNT	58	NR
374	198-2A	026-3	MILLER & RODNEY 2W	MILLER & EWING	310	8	CNT	58	1
375	198-3	025-1	STATE & RODNEY IW	EWING & STATE	350	8	CNT	58	1
376	200-1	076-3	REEDERS ALLEY & BENTON TRAIL	REEDERS ALLEY & FRONTIER PARK	208	8	CNT	58	NR
377	200-1A	200-1	REEDERS ALLEY & HOWIE BRIDGE	REEDERS ALLEY & BENTON TRAIL	200	8	PVC	58	NR
378	200-1B	200-1A	REEDERS A & HOWIE ST BRIDGE IS	REEDERS ALLEY & HOWIE BRIDGE	59	6	PVC	58	NR
379	201-2	020-2	WARREN & PINE	WARREN & CUTLER	219	8	CNT	58	1
380	201-2A	201-2	WARREN & PINE IW	WARREN & PINE	150	8	CNT	58	NR
381	202-1	025-2	CUTLER & RODNEY IW	EWING & CUTLER	376	8	CNT	58	5
382	202-2	201-2	EWING & PINE	EWING & PINE	228	8	CNT	58	1
383	202-3	202-2	RODNEY & PINE IW	EWING & PINE	366	8	CNT	58	2
384	218-1	124-1	BROADWAY & RALEIGH IS	BROADWAY & RALEIGH	276	8	CNT	58	2
385	219-1	056-1	HILLSDALE & BLAKE IE	HILLSDALE & BLAKE	265	8	CNT	58	NR
386	219-2T	058-2	HILLSDALE & CHAUCER IW	HILLSDALE & CHAUCER	172	8	CNT	58	NR
387	221-1T	221-2	EDWARDS & BENTON IE 3S	EDWARDS & BENTON IE 2S	240	6	CNT	58	NR
388	221-2	221-2A	EDWARDS & BENTON IE 2S	EDWARDS & BENTON IE 1S	100	8	CNT	58	2
389	221-2A	221-0	EDWARDS & BENTON IE 1S	EDWARDS & BENTON IE	190	8	CNT	58	NR
390	222-1	150-1	6TH & K IE IN	EDWARDS & BENTON IE	212	15	VCP	58	NR
391	223-1	155-1	9TH & DAKOTA IS	8TH & DAKOTA IW	184	15	VCP	58	NR
392	229-1	229-1A	CLANCY & SPENCER 2S	9TH & DAKOTA	294	8	VCP	58	NR
393	229-1A	229-2	CLANCY & SPENCER IS	CLANCY & SPENCER IS	159	8	VCP	58	NR
394	229-2	229-3	CLANCY & SPENCER	PINE & SPENCER	352	8	VCP	58	5
395	229-3	034-1	PINE & SPENCER	PINE & RODNEY	188	8	VCP	58	5
396	230-1	046-3	STATE & DAVIS IE	STATE & DAVIS	61	8	VCP	58	NR
397	230-1A	230-1	STATE & BLAKE 2W	STATE & DAVIS IE	270	8	VCP	58	5
398	230-2	230-1A	STATE & BLAKE IW	STATE & BLAKE 2W	180	8	VCP	58	NR
399	231-1	150-1	8TH & MONTANA	8TH & DAKOTA AVE	514	8	VCP	58	NR
400	233-1	233-2	1ST & BEATTIE	2ND & BEATTIE	277	8	VCP	58	NR
401	233-1B	233-1	RHODE ISLAND & BEATTIE	1ST & BEATTIE	270	8	VCP	58	NR
402	233-1L	233-1	1ST & BEATTIE IE	1ST & BEATTIE	90	8	VCP	58	NR
403	233-2	233-3	2ND & BEATTIE	3RD & BEATTIE	270	8	VCP	58	5
404	233-3	057-3	3RD & BEATTIE	3RD & CHAUCER	488	8	CNT	58	3
405	233-3	234-3	3RD & BEATTIE	BEATTIE & STATE	270	8	VCP	58	3
406	234-1	241-1	HIGHLAND & BEATTIE IN	HIGHLAND & BEATTIE 2N	124	8	VCP	58	NR
407	234-1	235-1	HIGHLAND & BEATTIE	HILLSDALE & BEATTIE	267	8	VCP	58	NR
408	234-2	234-1	HIGHLAND & BEATTIE IS	HIGHLAND & BEATTIE	37	8	VCP	58	NR
409	234-2L	234-2	HIGHLAND & BEATTIE IE	HIGHLAND & BEATTIE	250	8	VCP	58	NR
410	234-3	234-2	BEATTIE & STATE	BEATTIE & HIGHLAND	270	8	VCP	58	3
411	234-3L	234-3	BEATTIE & STATE IE	BEATTIE & STATE	200	8	VCP	58	NR
412	235-1	123-1	BEATTIE & HILLSDALE	BEATTIE & BROADWAY	270	8	VCP	58	NR
413	235-1L	235-1	HILLSDALE & BEATTIE IE	HILLSDALE & BEATTIE	401	8	VCP	58	NR
414	237-1	233-1	1ST & CHAUCER IE	1ST & BEATTIE	426	8	VCP	58	NR
415	238-1	233-2	2ND & CHAUCER	2ND & BEATTIE	450	8	VCP	58	5
416	238-1L	238-1	2ND & CHAUCER IW	2ND & CHAUCER	120	8	VCP	58	NR
417	238-2	233-2	2ND & RALEIGH	2ND & BEATTIE	488	8	VCP	58	3
418	238-2B	238-2	2ND & RALEIGH IS	2ND & RALEIGH	196	8	VCP	58	NR
419	238-2L	238-2	2ND & RALEIGH IE	2ND & RALEIGH	77	8	VCP	58	NR
420	239-1	233-3	3RD & BEATTIE IE	3RD & BEATTIE	300	8	VCP	58	NR

Record#	MANHOLE#	MANHOLET	UPSADOR	DWNADOR	LENGTH	SIZE	PIPETYPE	AREACODE	MAINRATE
421	239-1L	239-1	3RD & BEATTIE 2E	3RD & BEATTIE 1E	50	8	VCP	58	NR
422	241-1	057-1	HIGHLAND & CHAUCER 1E	HIGHLAND & CHAUCER	400	8	VCP	58	3
423	242-1	235-1	HILLSDALE & CHAUCER 1E	HILLSDALE & BEATTIE	400	8	VCP	58	3
424	244-1	136-2	5TH & MONTANA	5TH & MONTANA 1W	614	8	VCP	58	NR
425	248-1	155-1	9TH & MONTANA	9TH & DAKOTA	419	8	VCP	58	NR
426	249-1	155-1	10TH & IDAHO	10TH & DAKOTA	344	8	VCP	58	NR
427	249-1A	249-1	10TH & HOBACK	10TH & IDAHO	498	8	VCP	58	5
428	252-1	252-1A	HARRISON & MING IN	HARRISON & MING 2N	350	8	VCP	58	NR
429	252-1A	189-3	HARRISON & MING 2N	CLARKE & HARRISON 1E	100	8	VCP	58	5
430	289-1	289-2	DAVIS & PINE	3RD & DAVIS IN	325	8	VCP	58	NR
431	289-2	046-3	3RD & DAVIS IN	DAVIS & STATE	150	8	VCP	58	NR
432	289-2A	289-2	3RD & DAVIS	3RD & DAVIS IN	176	8	VCP	58	NR
433	289-2B	289-2A	3RD & DAVIS 1E	3RD & DAVIS	345	8	VCP	58	NR
434	289-2C	289-2B	3RD & DAVIS 2E	3RD & DAVIS 1E	310	8	VCP	58	NR
435	290-1	059-3	BROADWAY & DAKOTA	BROADWAY & STABERN	397	8	VCP	58	NR
436	290-2	290-1	BROADWAY & MONTANA 1W	BROADWAY & DAKOTA	344	8	VCP	58	NR
437	311-1	046-2	HIGHLAND & DAVIS 1E	HIGHLAND & DAVIS	61	8	VCP	58	NR
438	311-2	311-1	HIGHLAND & BLAKE 1W	HIGHLAND & DAVIS 1E	343	8	VCP	58	NR
439	318-1	229-1	SPENCER & FLORA	SPENCER & FLORA IN	139	8	PVC	58	NR
440	318-2	318-1	FLORA & SPENCER 1S	FLORA & SPENCER	245	8	PVC	58	5
441	318-3	318-1	FLORA & SPENCER 1W	FLORA & CHAUCER	98	8	PVC	58	NR
442	319-1L	057-3	3RD & CHAUCER 1W	3RD & CHAUCER	420	8	VCP	58	NR
443	336-1	033-3	RODNEY & DIVISION	RODNEY & FLORA	446	8	VCP	58	3
444	336-2T	336-1	RODNEY & DIVISION 1S	RODNEY & DIVISION	54	8	CPT	58	NR
445	336-3	336-1	DIVISION & SPARTA	DIVISION & RODNEY	364	8	VCP	58	NR
446	337-1T	337-2	3RD & DAKOTA IN	DAKOTA & STATE	213	8	VCP	58	NR
447	337-2	337-3	DAKOTA & STATE	DAKOTA & HIGHLAND	271	9	VCP	58	NR
448	337-3	337-3A	DAKOTA & HIGHLAND	DAKOTA & HIGHLAND IN	150	8	VCP	58	NR
449	337-3A	290-1	HIGHLAND & DAKOTA IN	DAKOTA & BROADWAY	402	8	VCP	58	NR
450	337-4	337-5	1100 ALLEY HIGHLAND	HIGHLAND & MONTANA 2W	138	10	CPT	58	NR
451	337-4L	337-4	1100 ALLEY HIGHLAND 1W	1100 ALLEY HIGHLAND	92	10	CPT	58	NR
452	337-5	337-3	HIGHLAND & MONTANA 2W	HIGHLAND & DAKOTA	280	8	VCP	58	NR
453	337-6L	337-5	HIGHLAND & MONTANA 1W	HIGHLAND & MONTANA 2W	94	8	VCP	58	NR
454	355-1	143-2	6TH & DAKOTA 1E	6TH & DAKOTA 1W	225	8	VCP	58	5
455	355-1A	355-1	6TH & DAKOTA 1E	6TH & DAKOTA	323	9	VCP	58	NR
456	357-1	059-2	BRECKENRIDGE & MONTANA 1W	BRECKENRIDGE & ALTA 1E	470	8	VCP	58	3
457	357-2	357-1	BRECKENRIDGE & MONTANA 1W	BRECKENRIDGE & HT 2W	200	8	VCP	58	NR
458	426-1	426-2	100 ALLEY NORTH WARREN 1E	100 ALLEY NORTH WARREN	272	8	PVC	58	NR
459	426-2	120-1	100 ALLEY NORTH WARREN	WARREN & BROADWAY	145	8	PVC	58	NR
460	449-3	290-4	MONTANA & HIGHLAND	MONTANA & BROADWAY	202	8	CPT	58	NR
461	480-1	449-3	MONTANA & WINNE IN	MONTANA & HIGHLAND	400	8	CPT	58	NR
462	480-2	480-1	SOUTH MONTANA & WINNE 1S	SOUTH MONTANA & WINNE IN	400	8	CPT	58	NR
463	480-2L	480-2	SOUTH MONTANA & WINNE 1S	SOUTH MONTANA 2S	63	8	CPT	58	NR
464	525-1	059-3	STABERN & BROADWAY 1S	STABERN & BROADWAY	400	8	VCP	58	NR
465	525-2	525-3	ALTA & HIGHLAND	HIGHLAND & STABERN	233	8	VCP	58	NR
466	525-2L	525-2	HIGHLAND & ALTA 1W	HIGHLAND & ALTA	222	8	PVC	58	NR
467	525-3	525-1	STABERN & HIGHLAND	STABERN & HIGHLAND IN	161	8	VCP	58	NR
468	525-3L	525-3	STABERN & HIGHLAND 1E	STABERN & HIGHLAND	228	8	VCP	58	NR
469	525-4	525-3	STABERN & HIGHLAND 1S	STABERN & HIGHLAND	129	8	VCP	58	NR
470	525-4L1	525-4	200 ALLEY STABERN 1W	200 ALLEY STABERN	63	8	VCP	58	NR
471	525-4L2	525-4	200 ALLEY STABERN 1E	200 ALLEY STABERN	228	8	VCP	58	NR
472	542-1	542-2	DAVIS & FLORA	DAVIS & 1ST	397	8	CPT	58	NR
473	542-2	289-1	1ST & DAVIS	DAVIS & PINE	487	8	RCP	58	NR
474	542-2	542-2A	1ST & DAVIS ST	2ND & DAVIS ST	330	8	VCP	58	NR
475	542-2A	289-1	2ND & DAVIS ST	PINE & DAVIS ST	170	8	VCP	58	NR
476	542-3	542-2	1ST & DAVIS 1E	1ST & DAVIS	288	8	CPT	58	NR
477	542-3A	542-3	1ST & DAVIS 2E	1ST & DAVIS 1E	61	8	CPT	58	NR
478	542-4	057-2	STATE & CHAUCER 1E	STATE & CHAUCER	85	8	VCP	58	NR
479	542-5	241-1	STATE & BEATTIE 1W	HIGHLAND & BEATTIE 2W	250	8	VCP	58	NR
480	542-6	237-1	1ST & CHAUCER	1ST & CHAUCER 1E	75	8	VCP	58	NR

Record# MANHOLEF MANHOLET

UPSAADOR

DWNADODR

LENGTH SIZE PIPE TYPE AREACODE MAIN RATE

481	542-6L	542-6	1ST & CHAUCER 1W	1ST & CHAUCER	30	8	CPN	58	NR
482	770-19-1	002-1	MALL & WONG	BROADWAY & MALL 1S	256	15	VCP	58	3
483	770-19-2	770-19-1	WEST MALL & WONG 1S	WEST MALL & WONG IN	225	15	VCP	58	5
484	770-19-3	770-19-2	WEST MALL & WONG 2S	WEST MALL & WONG 1S	166	15	VCP	58	NR
485	770-19-5	770-19-3	PUBLIC LIBRARY SW CORNER	WEST MALL & WONG 2S	102	9	CHT	58	4
486	770-19-6	770-19-5	FEDERAL BLDG ACCESS ROAD 2E	PUBLIC LIBRARY SW CORNER	205	9	CHT	58	NR
487	770-19-6A	770-19-6	FED BLDG ACCESS RD 1E	FED BLDG ACCESS RD 2E	44	8	VCP	58	NR
488	770-19-7	770-19-5	PUBLIC LIBRARY SW CORNER 1W	PUBLIC LIBRARY SW CORNER	105	9	CHT	58	NR
489	775-11-1	775-11-2	NW CORNER FEDERAL BUILDING 1S	NW CORNER FEDERAL BUILDING	58	10	PVC	58	NR
490	775-11-2	770-19-6	NW CORNER FEDERAL BUILDING	FEDERAL BUILDING ACCESS RD 2E	29	10	PVC	58	NR
491	77331-1	480-2A	MONTANA & OCEOLA	MONTANA & OCEOLA 1N	126	8	PVC	58	NR
492	77331-10	77335-9	WOOD BRIDGE & MONTANA 2W 1S	WOODBIDGE & MONT 2W	189	8	PVC	58	NR
493	77331-11	77331-10	MONTANA & STRAWBERRY 4W	WOODBIDGE & MONTANA 2W 1S	109	8	PVC	58	NR
494	77331-12	77331-11	MONTANA & STRAWBERRY 3W	MONTANA & STRAWBERRY 4W	230	8	PVC	58	NR
495	77331-13	77331-10	MONTANA & WOOD 2W 1S 1E	WOODBIDGE & MONTANA 2W 1S	155	8	PVC	58	NR
496	77331-14	77331-13	MONTANA & WOOD BRIDGE 2W 1S 2E	MONTANA & WOODBRIDGE 2W 1S 1E	160	8	PVC	58	NR
497	77331-15	77331-5	MONTANA & WINTERGREEN 1S	MONTANA & WINTERGREEN 2S	204	8	PVC	58	NR
498	77331-15A	77331-15	MONT & WINTERGREEN CRT 1W 1S	MONTANA & WINTERGREEN 1W	161	8	PVC	58	NR
499	77331-16	77331-15	MONTANA & WINTERGREEN	MONTANA & WINTERGREEN 1W	142	8	PVC	58	NR
500	77331-17	77331-16	MONTANA & WOODBRIDGE 1N	MONTANA & WOODBRIDGE 2N	375	8	PVC	58	NR
501	77331-18	77331-17	MONTANA & STRAWBERRY 1N	MONTANA & WOODBRIDGE 1N	171	8	PVC	58	NR
502	77331-19	77331-18	MONTANA & WINTERGREEN 1W	MONTANA & STRAWBERRY 1N	153	8	PVC	58	NR
503	77331-2	77331-1	OCEOLA & MONTANA 1W	MONTANA & WINTERGREEN 1N	125	8	PVC	58	NR
504	77331-20	77335-19	MONTANA & STRAWBERRY 2W	MONTANA & STRAWBERRY 1W	237	8	PVC	58	NR
505	77331-21	77331-20	MONTANA & STRAWBERRY 3W	MONTANA & STRAWBERRY 2W	280	8	PVC	58	NR
506	77331-23	77335-18	MONTANA & STRAWBERRY 1W	MONTANA & STRAWBERRY 1N	338	8	PVC	58	NR
507	77331-24	77331-4A	BLOCK B LOT 12	BLOCK B LOT 9	87	8	PVC	58	NR
508	77331-25	77331-24	BLOCK A & LOT 15	BLOCK A & LOT 12	220	8	PVC	58	NR
509	77331-26	77331-2	OCEOLA & MONTANA 2W	BLOCK B & MONTANA 1W	160	8	PVC	58	NR
510	77331-27	77331-26	OCEOLA & MONTANA 3W	BLOCK B & LOT 6	218	8	PVC	58	NR
511	77331-28	77331-27	TOUCHSTONE DRIVE 2N	TOUCHSTONE DRIVE 3N	189	8	PVC	58	NR
512	77331-29	77331-28	TOUCHSTONE DRIVE 1N	TOUCHSTONE DRIVE 2N	133	8	PVC	58	NR
513	77331-3	77331-2	WINTERGREEN COURT IN 1E	BLOCK A LOT 2 1E	180	8	PVC	58	NR
514	77331-30	77331-29	TOUCHSTONE DRIVE	TOUCHSTONE DRIVE IN	52	8	PVC	58	NR
515	77331-4	77331-3	WINTERGREEN COURT IN	BLOCK A & LOT 2	158	8	PVC	58	NR
516	77331-4A	77335-4	WINTERGREEN COURT IN 2W	WINTERGREEN & MONT IN	125	8	PVC	58	NR
517	77331-5	77335-4	WINTER GREEN COURT	WINTERGREEN & MONT IN	170	8	PVC	58	NR
518	77331-6	77331-5	THE BRIDGE ON WOOD BRIDGE IN	WINTERGREEN DRIVE S	204	8	PVC	58	NR
519	77331-6A	77331-6	WINTERGREEN COURT 1S 1W	THE BRIDGE ON WOOD BRIDGE IN	313	8	PVC	58	NR
520	77331-6B	77331-6	MONTANA & WOOD BRIDGE 1W IN 1W	TIMBER BRIDGE IN	100	8	PVC	58	NR
521	77331-7	77331-6B	MONTANA & WOOD BRIDGE 1W IN	LOT 9 & BLOCK G	250	8	PVC	58	NR
522	77331-8	77331-7	WOODBIDGE & MONT 1W	TS-8 & WOODBRIDGE IN	89	8	PVC	58	NR
523	77331-9	77331-8	MONTANA & WOODBRIDGE 2S	MONTANA & WOODBRIDGE 1S	407	8	PVC	58	NR
524	771-0-3	771-0-4	CRUSE AVENUE OVERPASS 1E	CRUSE AVE OVERPASS	255	12	PVC	58	NR
525	771-0-4	771-0-8	CRUSE AVENUE OVERPASS	PARK W OF CRUSE AVE OVERPASS	181	12	PVC	58	NR
526	771-0-5	771-0-4	CUTLER & CRUSE AVE PARKWAY	CUTLER & CRUSE AVE PARKWAY IN	260	8	PVC	58	NR
527	771-0-6	771-0-5	CRUSE AVE & CUTLER PARKWAY	CRUSE AVENUE OVERPASS 1S	160	8	PVC	58	NR
528	771-0-7	771-0-6	WEST YARD OF 101-109 S EWING	CRUSE & CUTLER PARKWAY	168	8	PVC	58	NR
529	771-0-8	770-19-2	WONG & WEST MALL 1S 1E	WONG & WEST MALL 1S	225	15	VCP	58	NR
530	7774-13-1	003-2	6TH & MALL 1E	6TH & MALL 1S	27	10	PVC	58	NR
531	7774-13-2	7774-13-1	6TH & MALL 1W	6TH & MALL 1E	157	8	PVC	58	NR
532	7774-13-4	003-2	6TH & MALL 1E	6TH & MALL 1S	27	10	PVC	58	NR
533	083-1	090-2	FLOWEREE & BENTON	STUART & BENTON	231	15	VCP	68	NR
534	087-1	088-2	LAWRENCE & BENTON	HOLTER & BENTON	493	9	VCP	68	NR
535	088-1	089-2	POWER & BENTON	GILBERT & BENTON	382	12	VCP	68	5
536	088-2	088-1	HOLTER & BENTON	POWER & BENTON	380	12	VCP	68	5
537	089-1	083-1	FLOWEREE & BENTON	FLOWEREE & BENTON IN	138	15	VCP	68	NR
538	089-2	089-1	GILBERT & BENTON	FLOWEREE & BENTON	213	12	VCP	68	NR
539	090-2	090-3	STUART & BENTON	HAUSER & BENTON	370	9	CHT	68	2
540	090-3	091-2	HAUSER & BENTON	KNIGHT & BENTON	367	9	CHT	68	4

Record#	MANHOLE#	MANHOLET	UPSADDR	DWNADDR	LENGTH	SIZE	PIPE	TYPE	AREACODE	MAIN	RATE
541	091-2	091-1	KNIGHT & BENTON	LYNDALE & BENTON	225	24	VCP	68	NR		
542	098-1	187-1	HOWIE & LAWRENCE	DEARBORN & LAWRENCE	175	9	VCP	68	5		
543	099-1	100-2	300 ALLEY HOLTER	300 ALLEY POWER	307	8	CMT	68	1		
544	099-2T	099-1	300 ALLEY LAWRENCE IN	300 ALLEY HOLTER	367	6	CMT	68	NR		
545	100-1	101-1	300 ALLEY GILBERT	300 ALLEY STUART	515	8	CMT	68	1		
546	100-2	100-1	300 ALLEY POWER	300 ALLEY GILBERT	380	8	CMT	68	1		
547	101-1	102-2	300 ALLEY STUART	300 ALLEY HAUSER	372	8	CMT	68	1		
548	102-1	091-2	300 ALLEY KNIGHT	KNIGHT & BENTON	40	9	CMT	68	1		
549	102-2	102-1	300 ALLEY HAUSER	300 ALLEY KNIGHT	370	9	CMT	68	1		
550	103-1	104-2	HOLTER & DEARBORN	POWER & DEARBORN	380	8	CMT	68	1		
551	103-2T	103-1	DEARBORN & LAWRENCE IN	HOLTER & DEARBORN	326	8	CMT	68	1		
552	104-1	105-2	GILBERT & DEARBORN	FLOWEREE & DEARBORN	213	8	CMT	68	1		
553	104-2	104-1	POWER & DEARBORN	GILBERT & DEARBORN	375	8	CMT	68	1		
554	105-1	106-2	STUART & DEARBORN	HAUSER & DEARBORN	370	9	CMT	68	1		
555	105-2	105-1	FLOWEREE & DEARBORN	STUART & DEARBORN	371	9	CMT	68	1		
556	105-2	088-1	DEARBORN & FLOWEREE	BENTON & FLOWEREE	390	12	CMT	68	5		
557	106-1	091-2	DEARBORN & KNIGHT	BENTON & KNIGHT	384	21	VCP	68	NR		
558	106-2	106-1	HAUSER & DEARBORN	KNIGHT & DEARBORN	365	9	CMT	68	1		
559	107-1	108-2	400 ALLEY HOLTER	400 ALLEY POWER	379	9	CMT	68	1		
560	107-2T	107-1	400 ALLEY LAWRENCE IN	400 ALLEY HOLTER	355	8	CMT	68	1		
561	108-1	109-1A	400 ALLEY GILBERT	400 ALLEY FLOWEREE	195	9	CMT	68	1		
562	108-2	108-1	400 ALLEY POWER	400 ALLEY GILBERT	351	9	CMT	68	1		
563	109-1	110-2	400 ALLEY STUART	400 ALLEY HAUSER	337	9	CMT	68	1		
564	109-1A	109-1	400 ALLEY FLOWEREE	400 ALLEY STUART	385	9	CMT	68	2		
565	110-1	106-1	KNIGHT & DEARBORN 1W	DEARBORN & KNIGHT	50	8	CMT	68	NR		
566	110-2	110-1	400 ALLEY HAUSER	400 ALLEY KNIGHT	370	8	CMT	68	1		
567	112-1	113-2	GILBERT & MADISON	FLOWEREE & MADISON	213	8	CMT	68	1		
568	112-2	112-1	POWER & MADISON	GILBERT & MADISON	378	10	CMT	68	1		
569	112-3	112-2	HOLTER & MADISON	POWER & MADISON	380	9	CMT	68	1		
570	113-1	114-2	STUART & MADISON	HAUSER & MADISON	371	9	CMT	68	1		
571	113-2	113-1	FLOWEREE & MADISON	STUART & MADISON	367	9	CMT	68	1		
572	113-2	105-2	MADISON & FLOWEREE	DEARBORN & FLOWEREE	382	8	CMT	68	5		
573	114-1	106-1	MADISON & KNIGHT	DEARBORN & KNIGHT	388	15	VCP	68	5		
574	114-2	114-1	HAUSER & MADISON	KNIGHT & MADISON	364	9	CMT	68	1		
575	116-1	112-3	HARRISON & HOLTER	MADISON & HOLTER	360	7	SLP	68	5		
576	116-2	116-1	HOLTER & HARRISON 1S	HOLTER & HARRISON	350	9	CMT	68	4		
577	176-1	113-2	HARRISON & FLOWEREE	MADISON & FLOWEREE	369	9	CMT	68	5		
578	176-1	232-1	FLOWEREE & HARRISON	STUART & HARRISON	363	8	VCP	68	NR		
579	178-1	114-1	HARRISON & KNIGHT	MADISON & KNIGHT	387	12	CMT	68	4		
580	180-1T	180-2	HAYES & POWER 1W	HAYES & POWER	239	8	CMT	68	3		
581	180-2	180-3	HAYES & POWER	MONROE & POWER	360	8	CMT	68	1		
582	180-3	181-1	MONROE & POWER	HARRISON & POWER	360	8	CMT	68	1		
583	180-3L	180-3	MONROE & POWER 1S	MONROE & POWER	200	8	VCP	68	NR		
584	181-1	112-2	HARRISON & POWER	MADISON & POWER	361	8	CMT	68	1		
585	182-1	112-1	HARRISON & GILBERT	MADISON & GILBERT	364	9	CMT	68	1		
586	183-1T	183-2	MOUND & HOLTER	HOLTER & HAYES	360	8	CMT	68	NR		
587	183-2	184-1	HAYES & HOLTER	MONROE & HOLTER	360	8	CMT	68	1		
588	184-1	116-1	MONROE & HOLTER	HARRISON & HOLTER	356	7	SLP	68	5		
589	186-1T	186-2	MONROE & LAWRENCE	HARRISON & LAWRENCE	270	9	VCP	68	NR		
590	186-2	186-3	HARRISON & LAWRENCE	MADISON & LAWRENCE	345	9	VCP	68	3		
591	186-3	098-1	MADISON & LAWRENCE	HOWIE & LAWRENCE	233	9	VCP	68	3		
592	186-3L	186-3	MADISON & LAWRENCE IN	MADISON & LAWRENCE	175	8	VCP	68	NR		
593	187-1	087-1	DEARBORN & LAWRENCE	BENTON & LAWRENCE	350	9	VCP	68	3		
594	225-1	184-1	HOLTER & MONROE 1S	HOLTER & MONROE	412	9	VCP	68	4		
595	226-1T	182-1	GILBERT & HARRISON 1S	GILBERT & HARRISON	285	6	VCP	68	NR		
596	227-1L	227-2	HAYES & POWER 2S	HAYES & POWER 1S	46	8	VCP	68	NR		
597	227-2	180-2	POWER & HAYES 1S	POWER & HAYES	150	8	VCP	68	3		
598	232-1	232-2	STUART & HARRISON	HAUSER & HARRISON	370	8	VCP	68	5		
599	232-1L	232-1	STUART & HARRISON 1W	STUART & HARRISON	145	8	VCP	68	NR		
600	232-2	178-1	HAUSER & HARRISON	KNIGHT & HARRISON	367	8	VCP	68	5		

Record#	MANHOLEF	MANHOLET	UPSADDER	DWNADDER	LENGTH	SIZE	PIPETYPE	AREACODE	MAINRATE
601	272-1	272-2	GILBERT & MONROE	FLOWEREE & MONROE	172	8	VCP	68	NR
602	272-1L	272-1	MONROE & GILBERT IS	MONROE & GILBERT	338	8	VCP	68	NR
603	272-2	273-1	FLOWEREE & MONROE	STUART & MONROE	366	8	VCP	68	NR
604	273-1	273-2	STUART & MONROE	HAUSER & MONROE	371	8	VCP	68	NR
605	273-2	274-1	HAUSER & MONROE	KNIGHT & MONROE	368	8	VCP	68	NR
606	274-1	178-1	MONROE & KNIGHT	HARRISON & KNIGHT	356	10	VCP	68	NR
607	275-1T	275-2	POWER & HAYES IN	GILBERT & HAYES	326	9	VCP	68	NR
608	275-2	275-3	GILBERT & HAYES	FLOWEREE & HAYES	208	9	VCP	68	NR
609	275-3	276-1	FLOWEREE & HAYES	STUART & HAYES	371	9	VCP	68	NR
610	276-1	276-2	STUART & HAYES	HAUSER & HAYES	371	9	VCP	68	NR
611	276-2	277-1	HAUSER & HAYES	KNIGHT & HAYES	371	9	VCP	68	NR
612	277-1	274-1	HAYES & KNIGHT	MONROE & KNIGHT	334	10	VCP	68	5
613	294-1	275-2	MOUND & GILBERT	HAYES & GILBERT	370	8	VCP	68	NR
614	294-1L	294-1	GILBERT & MOUND 1W	GILBERT & MOUND	232	8	VCP	68	NR
615	295-2	276-2	HAUSER & GARFIELD	HAUSER & HAYES	205	8	VCP	68	NR
616	352-1	295-2	STUART & GARFIELD	HAUSER & GARFIELD	334	8	VCP	68	5
617	352-3	352-1	FLOWEREE & GARFIELD	STUART & GARFIELD	334	8	VCP	68	3
618	352-3L	352-3	GARFIELD & FLOWEREE 1E	GARFIELD & FLOWEREE	79	6	VCP	68	NR
619	503-1	183-2	HOLTER & HAYES 1S	HOLTER & HAYES	414	8	VCP	68	NR
620	503-1A	503-1	HAYES & HOLTER 2S	HAYES & HOLTER 1S	74	8	CNT	68	NR
621	520-1	060-1	BOULDER & MONTANA 1W	BOULDER & MONTANA	400	8	VCP	48	NR
622	520-1L	520-1	BOULDER & MONTANA 2W	BOULDER & MONTANA 1W	125	8	VCP	48	NR



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